• MARCH 1956

BUTANE-PROPANE News

FIFTY CENTS PER COPY

Latest Information on Weed Burning— a Tremendous Load Builder For Summer

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

Rockwell Presents

ROCKWELL

Beyond the Mains

A 16mm sound and color film available without charge for showing to interested groups

Produced As A Service To The LP-Gas Industry

Featuring the role played by Rockwell vapor meters in bringing the convenience and economy of "city type" gas service to rural America.

This film takes the mystery out of how LP-gas vapor meters operate. It shows how carefully they are made and tested. And it dramatizes the major benefits of metered service. Those viewing this full color and sound production are left with a new appreciation for the accuracy, honesty and convenience of selling and buying LP-gas by meter measurement.

Rockwell invites you to show this instructive 30 minute film at grange and association meetings, PTA, service clubs, school and study groups.

When requesting a print, please anticipate your requirements. Specify name of group, preferred date and alternate dates. Write Rockwell Manufacturing Company, Pittsburgh 8, Pa.

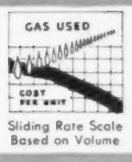
Dramatizing the benefits of metering to both consumers and dealers

Assures Uninterrupted Service

Eliminates "Out-of-Gas" Calls

Pay Only For Gas Used

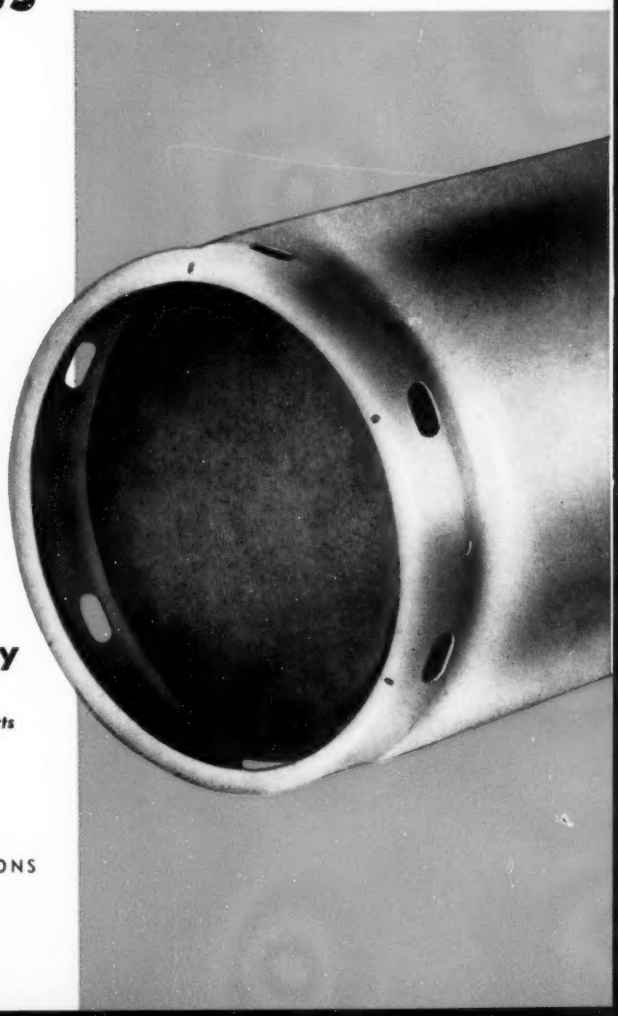
Route Trucks More Efficiently



Sliding Rate Scale Based on Volume

From cap to foot ring...

Hackney RC-100A assures extra values



Strong protective cap goes on and off easily because of accurately machined threads.

Easy, positive identification assured by depth-controlled stamping of ICC data.

Minimum seam area results from two-piece construction. Single girth weld is X-ray controlled for soundness and uniformity.

Light tare weight saves shipping and handling costs. High-strength steel resists handling knocks.

Sturdy, curled and vented foot ring hugs cylinder to form smooth, crack-free joint. Welded on all the way around.

Specially prepared, field tested two-coat bottom head protection provides extra corrosion resistance where it counts most.

Send for our helpful booklet on buying LP-gas cylinders. Answers forty questions you should ask before making your decision.

Pressed Steel Tank Company

1487 South 66th Street, Milwaukee 14, Wisconsin

Manufacturers of Hackney Products

52 Vanderbilt Avenue, Room 2099, New York 17 • 227 Hanna Bldg., Cleveland 15
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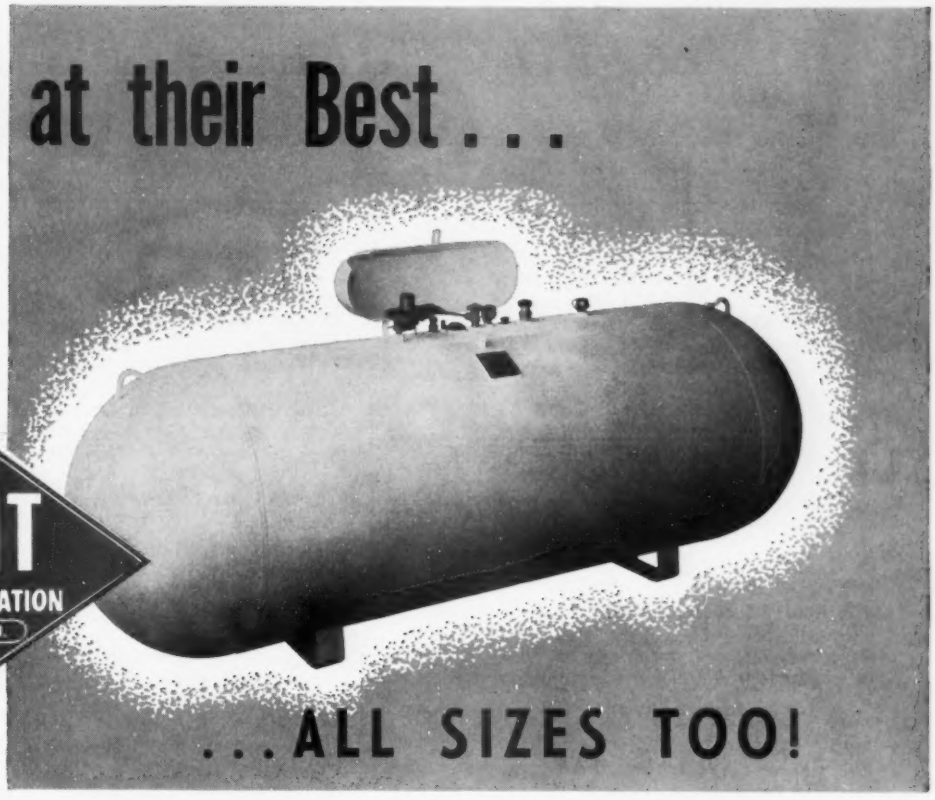
LP-GAS CONTAINERS FROM ONE POUND TO 30,000 GALLONS

Tanks at their Best . . .



with special features for easier sales

NEW . . . Easier-to-use . . . FITTINGS

New Flint tanks have individual fittings that can be quickly, easily replaced if necessary. They're the finest fittings made, placed in a unique island bar — easily reached for finger-tip control. Heavy gauge steel dome gives complete protection.

SPECIFICATIONS

WATER GALLONS	DIAMETER	OVERALL LENGTH	SHIPPING WEIGHT (Approx.)
250	30"	92"	700#
330	30"	116"	825#
500	37"	120"	1250#
1000	41"	193"	2550#

Complete Information Available from Flint or any ANCO office.

FLINT, long known for finest quality construction, shop inspects every plate and completed vessel. Every component, even to the superior paint finish, is the best. They're built in accordance with ASME code for 250# psi working pressure, with Underwriter's Approval. Flint tanks are unequalled buys — so, are easier to sell.

ANCO
MANUFACTURING & SUPPLY CO.

21st and Union • Tulsa, Okla. • LUther 4-6187
Des Moines • East St. Louis

FLINT STEEL CORP.

TULSA
LUther 4-1441

MEMPHIS
WHitehall 2-2432

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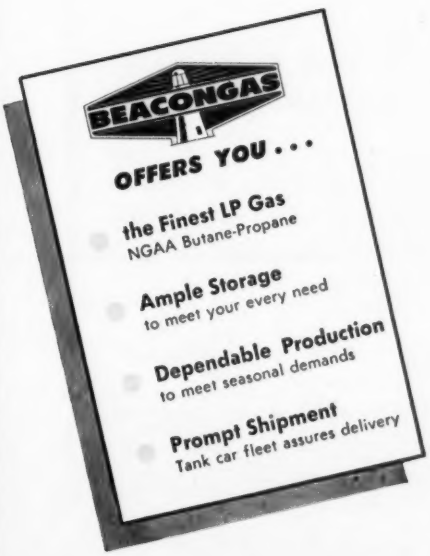


By the light from the dispatchers office, another shipment of Beacongas speeds on its way through the night. When you rely upon Beacon Petroleum for your Butane Propane you are assured of delivery during your busiest months. You are sure because it is our policy to sell LP gas only within our capacity to produce and deliver. We'll never, and you'll never — get caught short. At present we can handle a number of new contracts. Why don't you be sure . . with Beacon.

BEACONGAS

BEACON

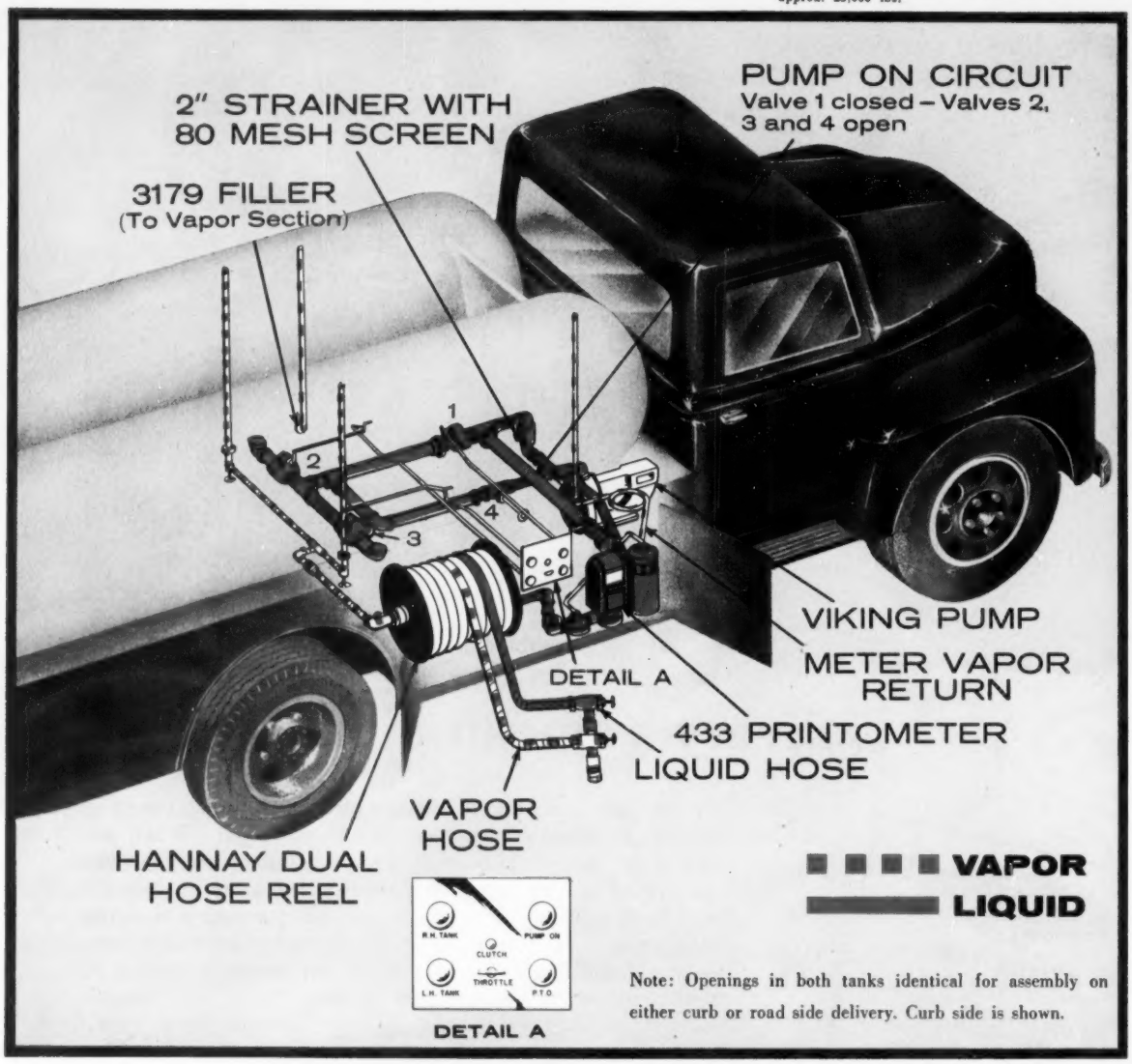
PETROLEUM COMPANY

TULSA • HOUSTON

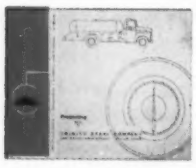
TRINITY MEANS

Trinity Precision engineering gives you extra quality in whatever model truck tank you select to fit your needs. And that famous Trinity quality always pays off . . . in lower operating costs and bigger profits!

Twin Barrel Model No. 100. 2175 WG cap. 46" dia. 250# WP. Conventional chassis with gross loaded weight of approx. 23,000 lbs.



Note: Openings in both tanks identical for assembly on either curb or road side delivery. Curb side is shown.



the NEW TRINITY STORY

Write today for your beautiful 16-page booklet covering the entire Trinity line of truck tanks, storage tanks and transports

member LIQUIFIED PETROLEUM GAS ASSOCIATION INC. LPGA

Congratulations to LPGA on their 25th Anniversary

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Tanques-Acero Trinity
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Mexico 16, D.F.

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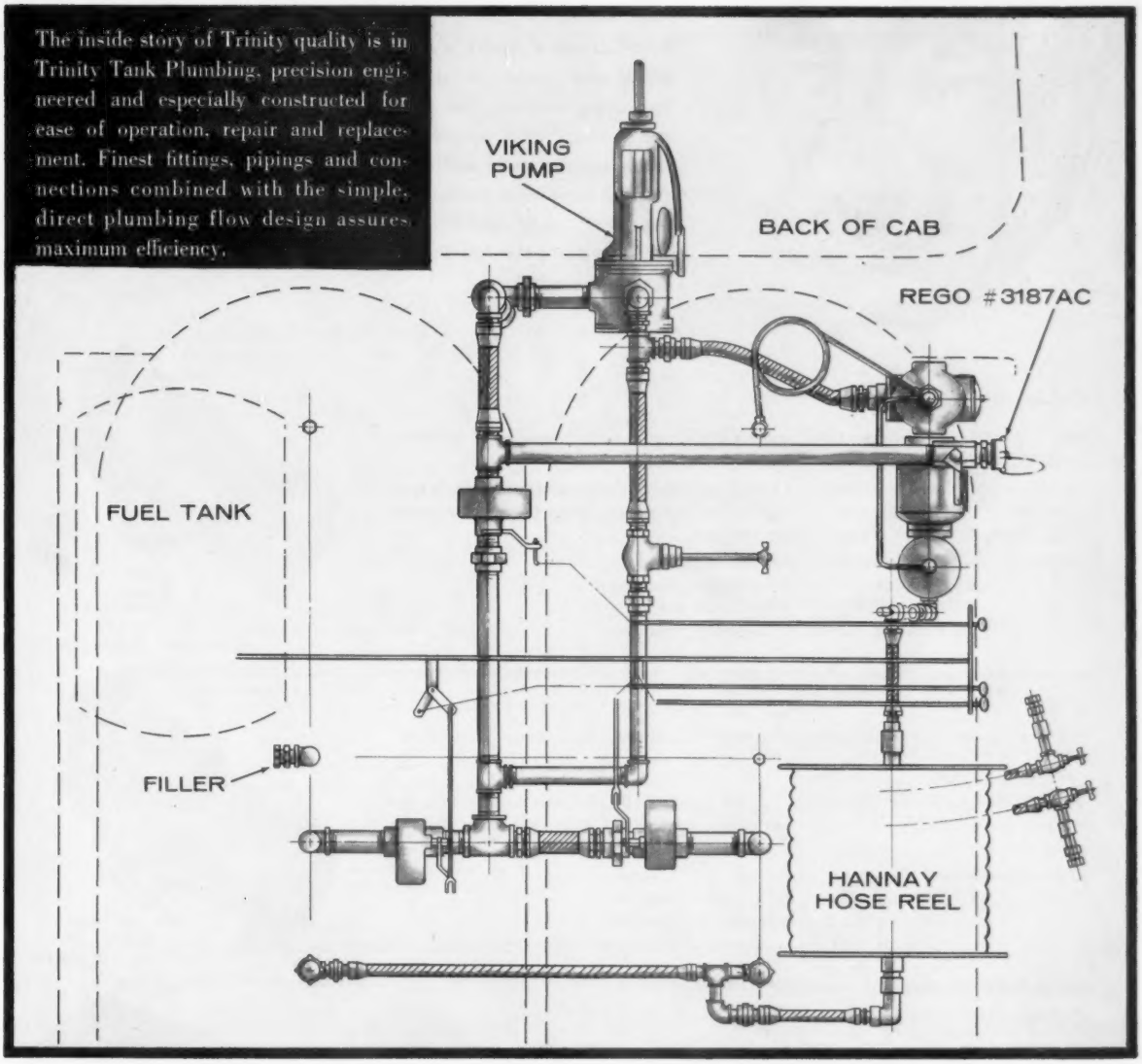
BUILT-IN QUALITY

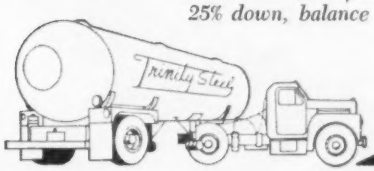
Trinity Model No. 106 cuts your operating costs, boosts profits because it was designed with LPG distributors needs in mind.

Trinity 6 x 7 "Neckdown Blimp" is fabricated approaching tank car capacity (legally). Lower center of gravity increases safety of operation.

The inside story of Trinity quality is in Trinity Tank Plumbing, precision engineered and especially constructed for ease of operation, repair and replacement. Finest fittings, pipings and connections combined with the simple, direct plumbing flow design assures maximum efficiency.



ASK US—about financing your new trucks, 25% down, balance monthly.



TRINITY STEEL COMPANY, INC.

C. J. BENDER
President

EVEREADY GAS SYSTEMS

DALLAS, TEXAS • HA 8-8321

Everyone's talking

NEW CORKEN CORO-FLO'S ARE RUGGED, CLOSE-COUPLED TRIPLE SAFETY TESTED, LEAK-PROOF SEALED AND THEY ARE GUARANTEED ONE FULL YEAR—INCLUDING THE SEAL.

New Corken Coro-Flo's have capacity and pressure for cylinder filling and motor fueling. Highest pressures—lots of volume for dispensing meters. The Coro-Flo design developes more volume and pressure with same motor horsepower. Coro-Flo construction permits seal change without disconnecting piping or motor. Close-coupled simplifies mounting, assures perfect alignment. "Floating Impeller," only moving part and no metal to metal contact. Coro-Flo's are the quietest, longest lasting pumps in the industry.

AVAILABLE IN 3/4 HP - 1 1/2 HP - 3 HP SIZES

C-10

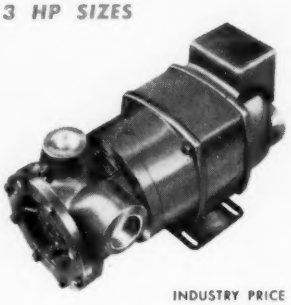
Fills 20# cylinder ½ minute—100# cylinder 2½ minutes—fuels through meter at 7 GPM

SPECIFICATIONS

¾ HP single phase, 60 cycle, 115/230 volt explosion proof motor with stop-start switch, overload relays and voltage changer mounted on rear of motor. 1 ¼" inlet, 1" outlet. Female pipe threads.

RATINGS—Actual delivered capacities in propane

13 GPM at 20 lbs. differential pressure
8 GPM at 40 lbs. differential pressure
3 GPM at 75 lbs. differential pressure



INDUSTRY PRICE
$205.00
DISCOUNT TO GAS DEALERS

C-12

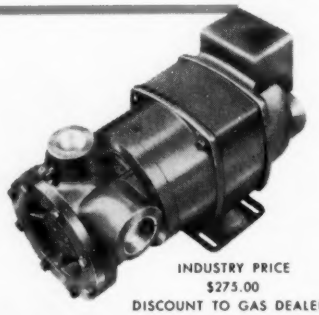
Fills 20# cylinder in 15 seconds—100# cylinder in 2 minutes—fuels through meter at 15 GPM

SPECIFICATIONS

1 ½ HP (Single phase only on C-12) 60 cycle, 115/230 volt explosion proof motor with starting switch and overload cutout. 1 ½" inlet, 1" outlet, Female pipe threads.

RATINGS—Actual delivered capacities in propane

18 GPM at 20 lbs. differential pressure
16 GPM at 40 lbs. differential pressure
9 GPM at 100 lbs. differential pressure



INDUSTRY PRICE
$275.00
DISCOUNT TO GAS DEALERS

C-14

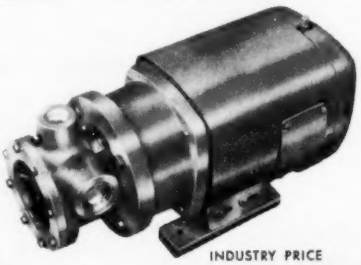
Fills 100# cylinder @ 60/hour. Fills Fuel tank through meter @ 30 GPM.

SPECIFICATIONS

3 HP (single or three phase) 60 cycle, explosion proof motor, (purchase starter separately for this size), 1 ½" inlet, 1" outlet, Female pipe threads.

RATINGS—Actual delivered capacities in propane

35 GPM at 20 lbs. differential pressure
24 GPM at 80 lbs. differential pressure
15 GPM at 125 lbs. differential pressure



INDUSTRY PRICE
$354.00 3 PHASE
DISCOUNT TO GAS DEALERS

about the NEW Coro-Flo's

AVAILABLE NOW-NEAR YOU

from these Corken Stocking Distributors

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Little Rock
Harris Distributors, Inc.
P.O. Box 146 Phone MO 6-5476

CALIFORNIA
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Meeder Equipment Company
1745 N. Eastern Ave. Phone ANgelus 9-1109
Los Angeles
Teeco Products, Inc.
3500 E. 14th St. Phone ANgelus 9-2121

CANADA
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James Petroleum Equipment, Ltd.
121 11th Ave., West Phone PRospect 2-5261
Toronto
Propane Containers of Canada, Ltd.
49 Main St. Mimico Ph. CLifford 9-4059

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Gas Equipment Company, of Denver
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Anco Manufacturing & Supply Company
316 Front Street Phone BRidge 1-8386
and BRidge 1-2484
Chicago (Berwyn)
Fine Products Company
6240 Ogden Avenue Phone BIshop 2-1363

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Indianapolis
Gas-Ammonia Equipment, Inc.
P.O. Box 5666 Phone Fleetwood 9-4411

IOWA
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Valley Industries, Inc.
P.O. Box 111 Phone 139

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Fairbanks Sales & Service Company
726 North Main Phone FOrest 3-5151

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3165 Choctaw Drive

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Mexico City
C.R. Hojel and Company, S.A.
Tiber #94 Phone 25-32-30

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Corken's Inc.
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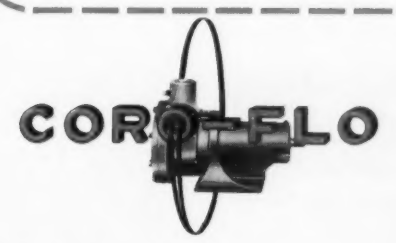

CORKEN'S,

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OKLAHOMA CITY 1, OKLA.
EASTERN OFFICE
935 MADISON, PLAINFIELD, N.J.
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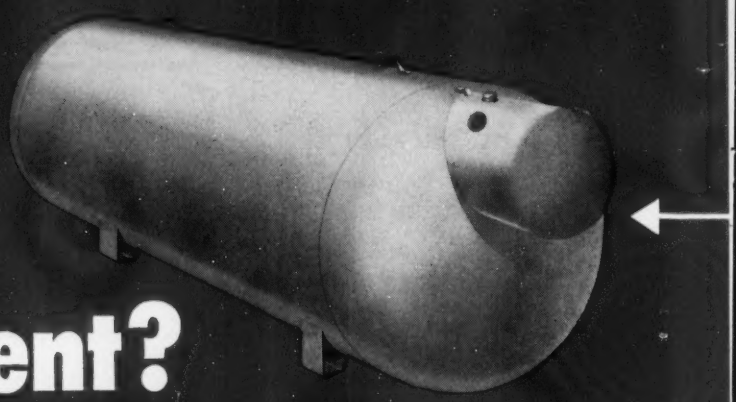
What's your requirement?



There's a SCAIFE FueLPack

To meet the increasing per capita consumption of LP-Gas, Scaife Company now offers the LP-Gas Industry a diversified line of both top and end operated A.S.M.E. Above Ground systems.

End operated designs are available in water capacities of 250, 285, 500 and 1,000 gallons, and top operated designs in water capacities of 250, 285, and 500 gallons.

You can rely on Scaife FueLPacks to give complete satisfaction. Only the highest quality materials . . . carefully selected for LP-Gas service . . . are used. Each unit complies with the American Society of Mechanical Engineers Code and is listed by the Underwriters' Laboratories, Incorporated.

The most modern manufacturing techniques are employed, using advanced production equipment. Every tank is subjected to exceptionally rigid quality control procedures including a hydrostatic test for structural strength and an air test for gas tightness. Dependability is assured by thorough checks conducted by qualified line and quality control inspectors.

Check the list of FueLPack advantages and you'll see why Scaife FueLPacks are becoming the choice of more and more LP-Gas men.

1. New16"wide removable curb box
Permits free access to system valves and regulator during tank filling—hook-type hinge can't jam or rust.

2. Lightweight, high-strength steel construction
Tank heads designed for maximum strength . . . built, tested and inspected in strict accordance with the American Society of Mechanical Engineers code. Each tank carries the Underwriters' Laboratories, Inc. listing.

3. Extra strong lifting lugs
Each tank is equipped with two 1" wide lifting lugs of ⅜" bar stock. Lugs are integrally-welded to the tank for maximum strength.

4. Easy fuel-level inspection
Serviceman or home owner may read the fuel-level gauge without unlocking or opening the curb box.

5. Extra-strong tank supports
Integrally welded to the tank and provided with slotted bolt holes for easy installation where bolts are required.

6. A tank that's shipped dry
Every SCAIFE tank is dry before it leaves the plant.

FOUNDED S 1902

SCAIFE COMPANY
OAKMONT (PITTSBURGH DISTRICT), PENNA.

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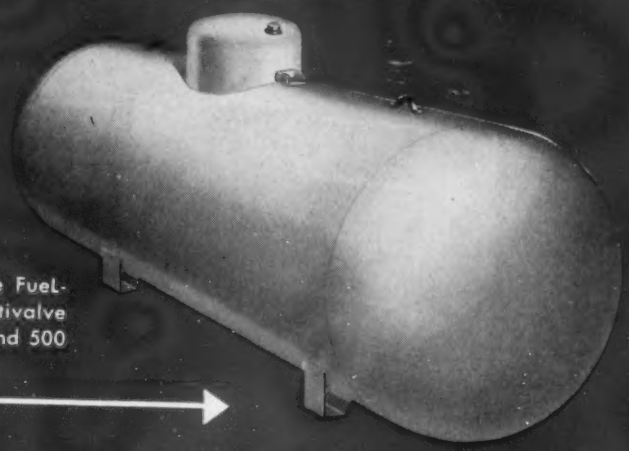
GENEVA, ILL.
ATLANTA, GA.
RIDGEWOOD, N.J.
OAKMONT, PA.

MAKERS OF PRESSURE VESSELS AND DRAWN SHAPES

End Operated Type EA—The FueL-Pack equipped with multiple valves . . . available in 250, 285, 500 and 1,000 gallon water capacities.

Top Operated Type TA—The FueL-Pack equipped with a multivalve . . . available in 250, 285 and 500 gallon water capacities.



above ground system to fit your needs

Guarantee

on

THE SCAIFE FUELPACK LIQUEFIED GAS SYSTEM

Scaife Company guarantees to the original purchaser of the Scaife Liquefied Gas System which bears the serial number below that Scaife Company will replace or at its option repair any part of the System which within one year from the date of installation proves to be defective in material or workmanship under normal use for storage of liquefied gas, normal service and pressure not exceeding the ratings shown on the name plate attached to the tank; provided the System has been installed in accordance with National Board of Fire Underwriters, state and local plumbing and building codes, ordinances and regulations; and provided the enclosed post card has been filled out, signed and mailed to Scaife Company within thirty days after installation.

No other guarantee or warranty, either express or implied, has been or will be made by or in behalf of Scaife Company with respect to the System or the installation, operation, replacement, or repair of the System; and the purchaser agrees that neither Scaife Company, nor its distributor, nor its dealer shall be liable by virtue of this guarantee or otherwise for damages to any person or property or for any labor or freight costs.

SCAIFE COMPANY

Serial No. _____

EVERY FueLPack carries a written guarantee:

The Scaife Company backs up every FueLPack Tank with a written guarantee. This is the purchaser's assurance of a safe, high-quality tank that will perform efficiently and dependably over an exceedingly long service life.

SCAIFE COMPANY
26 Ann Street
Oakmont (Pittsburgh District) Pa.

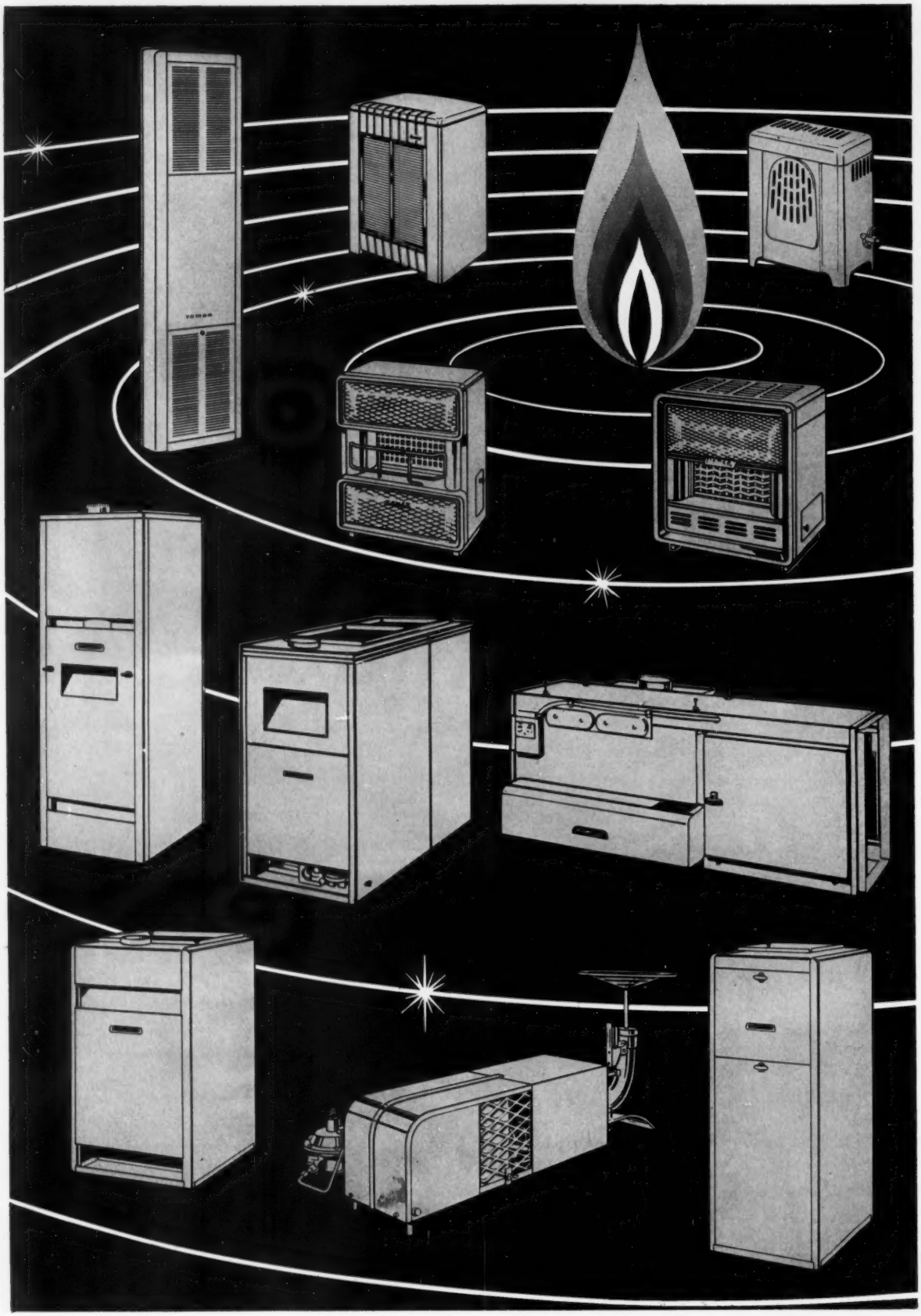
Please send me a free copy of your folder, "Scaife Above-Ground Tanks."

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____



TEMCO
...the company
with a single purpose...
Your best single source of supply
for gas heating equipment
For a quarter of a century now TEMCO has devoted its energies and research to one central theme—the manufacture of more efficient, more economical heating equipment that uses gas as a fuel. Over these years the TEMCO name has become synonymous with the word quality in the minds of both the trade and consumers. And it is the complete line, too, with a heating unit for every need. Whatever the problem—for a single room or an entire home—turn to TEMCO for the best answer.
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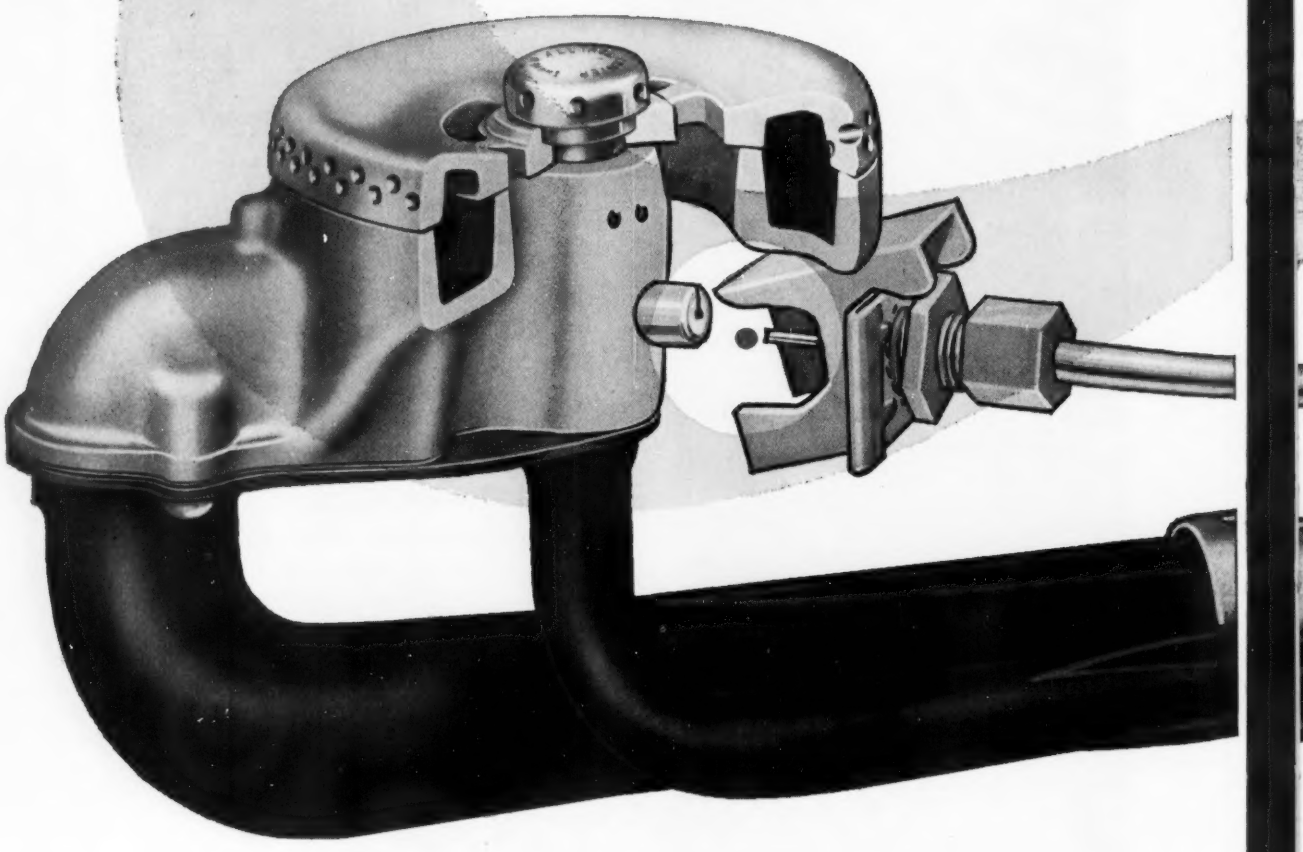
NASHVILLE 9, TENNESSEE
"Gas Heating Specialists for the Nation"

Here's *why* there's such a in the use of HARPER



You can sell MORE ranges with HARPER MICRO-LITE!

RANGE MANUFACTURERS: Take advantage of the sales features MICRO-LITE can add to your gas ranges. It is precision manufactured . . . tiny, stable flame is shielded from outage . . . is positioned to insure instant lighting. MICRO-LITE is ideal for thermostatically controlled top burners. You'll be surprised how quickly the assembly can be fitted into your ranges. Write today for further details and cost estimates.

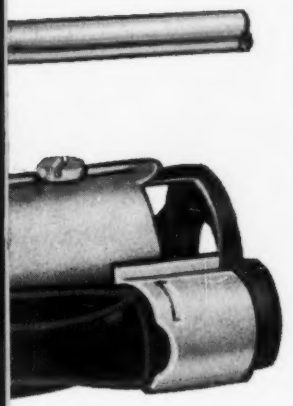
ALLTROL® CENTER SIMMER

tremendous increase

MICRO-LITE

the tiny pilot at each burner that gives instant ignition

- **INSTANT IGNITION WITH SMALLEST PILOT FLAME POSSIBLE**
- **KEEPS TOP OF RANGE COOLER**
- **ENGINEERED TO FIT ANY RANGE TOP BURNER**
- **AN EASY-TO-DEMONSTRATE SALES FEATURE**



There is extra sales appeal to ranges equipped with tiny-flame, instant-ignition MICRO-LITE top burner pilots. For when housewives feel the cool range top . . . see for themselves how fast and sure the burners light . . . sales come easier. And you've another important story to tell: MICRO-LITE requires no more gas—and often less—than the ordinary flash-tube ignition systems.

Another Product of HARPER ENGINEERING

HARPER-WYMAN COMPANY

DEPT. 36-B • 8550 VINCENNES AVENUE • CHICAGO 20, ILLINOIS

ORIGINATORS OF CENTER SIMMER BURNERS

Magic

more FIRSTS for '56

FIRST in advertising . . . FIRST in selling

First range in Reader's Digest – the magazine with more circulation than the two leading weeklies combined. Dramatic, full-color double spread in April issue kicks off the biggest national advertising campaign in gas range history. *Plus* continuing color ads in top women's books and farm magazines. *Plus* high-impact local market radio and TV. *Plus* generous cooperative allowance for dealer tie-in.

America's First Line of Space Heaters, Too!

9 oil models, 4 gas models, all more beautiful, more sales appealing than ever. Unusual, aggressive merchandising campaign. NEW DEALER PROFIT PROTECTION PLAN. Get the full story from your Magic Chef representative. Cash in on Magic Chef – the No. 1 name in ranges *and* space heaters.

Chef

than any other range

features . . . FIRST in consumer acceptance

Style-star and sales-star for '56! First gas range with a *built-in meat thermometer.* First with a *giant modern oven in a space-saver range.* First and finest range in styling, performance, *new* self-selling features! *Plus* all the other famous "firsts" that have made Magic Chef Mrs. America's first choice . . . in survey after survey by leading magazines and consumer polls.

on Magic Chef than any other range. **MAGIC CHEF, INC., ST. LOUIS 10, MO.**

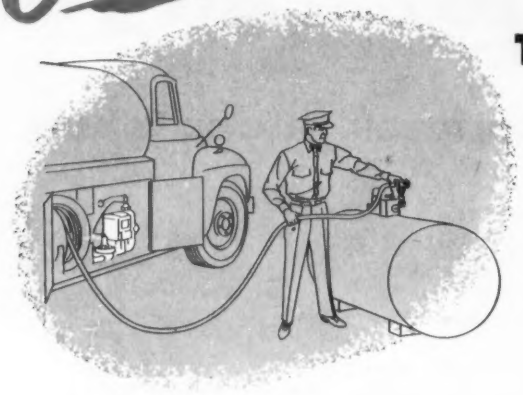
FIRST gas range with Roast-Guide —a built-in meat thermometer you read on top of the range! Takes all the guesswork out of roasting. An easy-to-demonstrate sales-clincher.

FIRST range with giant oven in a 36-inch range. Combines the increasingly popular large oven with the compact unit already selling about 50% of the market.

FIRST in foolproof cooking features. Magitrol griddle won't burn foods. Thermostatic heat control—just like the oven. Finer flavor. More healthful, too . . . grease runs off into handy pull-out drawer.

Illustration is a reprint of the dramatic Magic Chef ad in the April Reader's Digest. The ad shows Chef Troin of the Sheraton-Astor and tells why more famous chefs—and more women—cook on Magic Chef.

Announcing



TWO LARGER RED SEAL LIQUID METERS

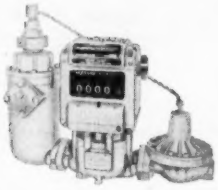
for faster bulk deliveries

If you're like most LP-gas men your average bulk deliveries are getting bigger . . . and you have more customers to serve each day. Now is the time to increase profits by reducing time per gallon . . . . with bigger pumps and these big new Red Seal LP-Gas liquid meters to get your trucks in and out minutes faster . . . with close control over inventory.

In principle and quality they're the same as the popular time-tested 1¼" Red Seals. All three sizes give you a complete, accurate truck or bulk plant metering system in one compact unit . . . with the new Neptune-designed differential valve and vapor-release "team" that's easy on the pump. Listed by Underwriters' Laboratories. Your choice of ticket-printing or direct reading registers.

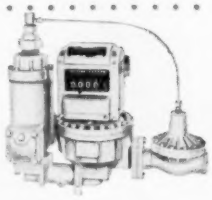
Free Bulletin 779 shows recommended closed-system installation of LP-Gas liquid meters. Ask for your copy today.

1½"
60 GPM



Compact light weight unit takes only 23" in truck compartment, includes all accessories for accurate metering. Capacity 12 to 60 gpm. Safe to 250 psi. working pressure. Ticket-printing or direct-reading register.

2"
100 GPM



For larger tank trucks or bulk plants. Approved metering system complete in one assembly. No "extras" to buy . . . fewer connections to make. Capacity 20 to 100 gpm. Working pressure 250 psi. maximum. Length 26". Ticket-printing or direct-reading registers.

RED SEAL LP-GAS LIQUID METERS

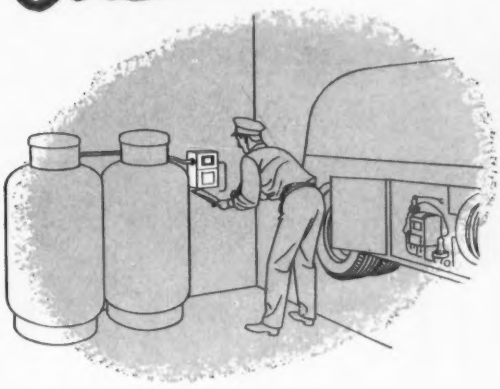
neptune

RS 16

Accuracy You Can Bank On

NEPTUNE METER CO., 19 West 50th St., New York 20, N. Y. *Canadian Factory:* NEPTUNE METERS LTD. Toronto 14, Ont.

Announcing



NEPTUNE BLUE SEAL LP-GAS VAPOR METERS

for gas metered service

Neptune, long the leader in liquid LP-gas meters, now proudly introduces the Blue Seal vapor meter for LP-gas dealers who feature gas-metered service.

Only 9 inches wide, the new Blue Seal accurately records all LP-gas consumption ranging from pilot burner to full household load. Its sturdy brass case is thoroughly weatherproof for outside settings.

Design of the new Blue Seal is based on the two-diaphragm slide valve used for over a century by gas utilities, with a fine record for long life, sustained accuracy and low maintenance. The new Blue Seal is manufactured by experienced craftsmen at Neptune's Superior Meter division, makers of fine gas meters since 1912. And it's moderately priced. Get all the facts today. Call your nearest Neptune branch office.

New Blue Seal Bulletin now ready for your files. Ask for it today.

NEPTUNE BLUE SEAL NP-40 LP-GAS VAPOR METER

RATED CAPACITY:
42 cfh propane, 37 cfh butane

WORKING PRESSURE
2 lbs. per sq. in. maximum

DIMENSIONS:
11⅜" high, 9" wide, 7½" deep

CONNECTIONS:
Std. male flared, for ⅜" copper tubing

INDEX:
Direct reading or dial reading, calibrated in cubic feet, pounds, therms, decitherms, gallons, etc.

BLUE SEAL LP-GAS VAPOR METERS

neptune

BS 6

Accuracy You Can Bank On

NEPTUNE METER CO., 19 West 50th St., New York 20, N. Y. *Canadian Factory:* NEPTUNE METERS LTD. Toronto 14, Ont.

Never before-

gas ranges with such magical automatic cooking freedom!

NEW Robertshaw® THERMAL EYE® **Automatic**

THINK OF IT!

NOW YOU CAN TELL YOUR CUSTOMERS FOODS WON'T OVER-COOK OR BOIL OVER

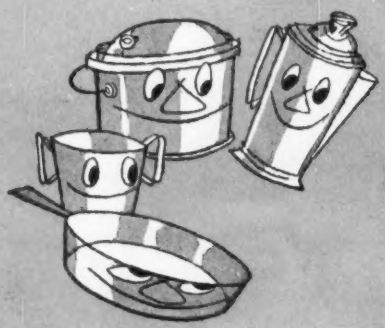
FOODS WON'T SMOKE, SCORCH OR BURN ONTO PANS

THINK OF IT!

NOW YOU CAN SHOW YOUR CUSTOMERS HEAT IN PAN CONTROLS FLAME

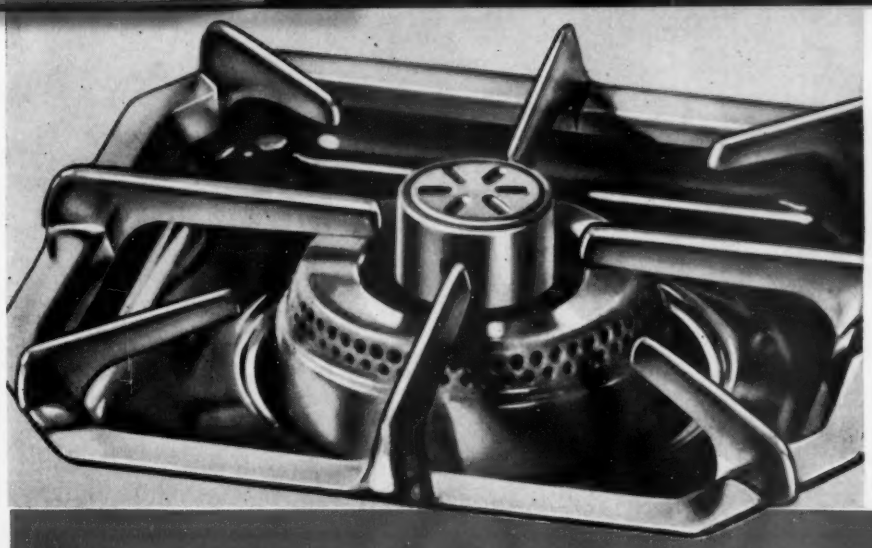
Sensing element in middle of burner is in contact with bottom of pan. It signals heat to thermostat that controls gas flow. Flame remains high until food reaches pre-selected cooking temperature, then gas input reduces. When food temperature drops below pre-selected setting, sensing element signals control and gas input increases to maintain desired temperature.

THINK OF IT! *EVERY COOKING UTENSIL IS AUTOMATIC*



Automatic top-burner controls give to gas ranges the same automatic service provided by automatic "plug-in" utensils—and it doesn't cost the customer more than a *single* good plug-in appliance.

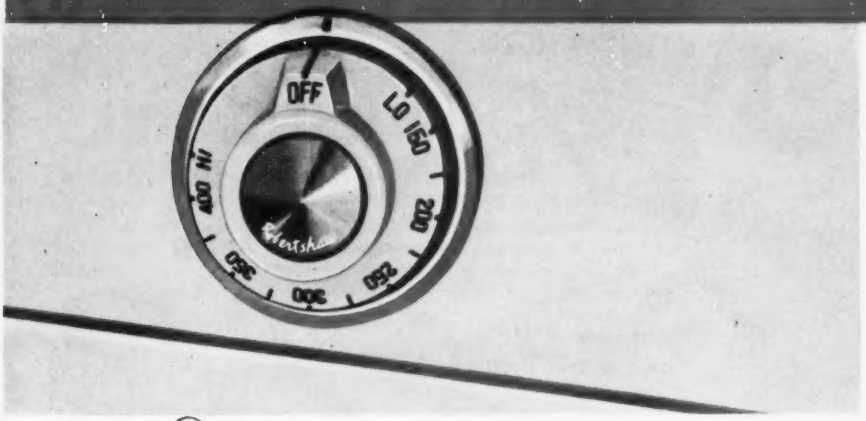
With an automatic convenience story like this, it's no wonder the Gas Industry calls this the *Golden Age Of Gas Range Selling!*



A NEW KIND OF AUTOMATIC COOKING FREEDOM!

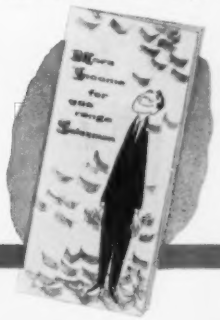
A NEW KIND OF AUTOMATIC SALES STORY!

Top-Burner Control



To help YOU demonstrate and sell gas ranges equipped with automatic top-burner controls Robertshaw-Fulton offers you now free copies of a brand-new sales training manual, "More Income For Gas Range Salesmen." Everyone selling Gas ranges today – manufacturers, Gas Companies, LP-Gas distributors and retail salesmen – should have a copy of this free 20-page booklet.

Write today for *your free copies*, as many as you can use, to Advertising Manager, Robertshaw-Fulton Controls Co., Greensburg, Penna.



Robertshaw-Fulton
CONTROLS COMPANY

Robertshaw Thermostat Division, Youngwood, Pennsylvania
Robertshaw-Fulton Controls (Canada) Ltd., Toronto

13 half-hour TV Films
starring
DIONE LUCAS

BRAND NEW! Devoted exclusively to automatic top-burner cookery demonstrated by Dione Lucas, outstanding cooking authority and TV personality. Approved by American Gas Association. Already scheduled by many Gas Companies, large and small, for Spring TV promotions. Robertshaw-Fulton is paying for producing these new TV films. Gas Company sponsors will pay only for their local air time plus a small service charge to the film distributor.

MAKING IT POSSIBLE FOR EXPAND AS THEY GREW

Some of today's largest users of Nor-Tex products bought their first tank and delivery unit from us years ago. Many times, when storage and delivery requirements increased, the methods and tanks we suggested proved out, permitting normal, uninterrupted growth at a minimum cost. With the building and supervision of Nor-Tex tanks entirely in the hands of men with years of bulk plant experience one can more accurately determine the right size tanks and the safe prices to pay to assure a profitable operation for the dealer. This bulk plant experience has resulted in many helpful, time-saving "extras" that have won Nor-Tex many customer friends.

STANDARD TWIN

Business small? Just getting started? Wherever you are located, the Nor-Tex Standard Twin is your best buy! This streamlined twin unit (1200 thru 2400 WG) is completely piped and ready to use with Viking mechanical seal pump, 50' filler hose, ICC lights, P.T.O. and splines jack shaft. A complete "Package Unit."

DE LUXE TWIN

Here is the choice of the fleet owner! It is the finest looking unit on the road with plenty of big, roomy cabinet space. It is a complete unit (1200 thru 2400 WG) with Viking mechanical seal pump, 50' filler hose, ICC lights, P.T.O., splines jack shaft and it is all piped and ready to use. A complete "Package Unit."

EXTRA SAVINGS on Complete

Buy one or a truckload.

POPULAR Nor-Tex STAR DOMESTIC TANKS

Each tank is fabricated to rigid specifications by men with years of domestic tank installation experience.

They're double tested . . . "*Built to Last a Lifetime.*" They meet all national, state and local requirements. It is the safest, finest quality tank you can buy! Smoothly finished and aluminum painted over red oxide. Complete satisfaction guaranteed.

Immediate Delivery

Balance Your Load the Nor-Tex Way

•

Finance the Balance

Manufacturers of Fine LPG Equipment

Whatever your needs in LPG equipment there is a factory tailored Nor-Tex unit ready for you! We manufacture LPG Truck and Transport Tanks, and we are truck distributors. We manufacture all types of LPG Tractor and Motor Fuel Tanks, Portable LPG Filling Stations and Trailer Tanks, LPG Storage and Domestic Tanks, Farm Carts and Anhydrous Ammonia Tanks, all built by men with years of Butane-Propane bulk plant experience. Phone, wire or write us. Interested attention, experienced assistance and helpful suggestions are always yours for the asking.

NORTH

P. O. BOX 1219

MANY LP-G DEALERS TO BUILT THIS BUSINESS

Nor-Tex Units Earn More! Cost Less! Do the Job Quicker and Easier!

"Biggest LP-G Year Ever Ahead," is the report from everywhere. Slash delivery costs with Nor-Tex High Flow Piping Units! Perfectly Balanced! Famous for loading and delivering LP-Gas *faster!*

PAYLOAD SPECIAL

Get immediate delivery on this internationally popular Nor-Tex twin and save money, too! It has everything you need in sizes from 1200 thru 2400 WG. Viking mechanical seal pump, 50' filler hose, ICC lights, P.T.O., splines jack shaft and it is completely piped and ready to use. A complete "Package Unit." *(Model illustrated.)*

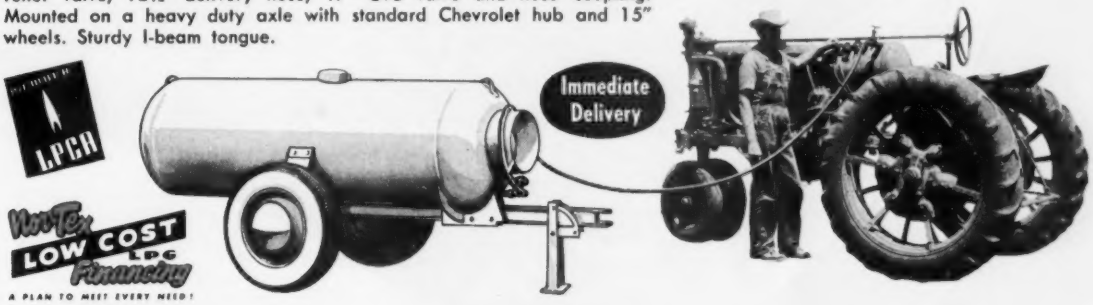
AUTHORIZED TRUCK DISTRIBUTORS

Nor-Tex PIPE-IT-YOURSELF "Package Units" — Nothing More To Buy!

Nor-Tex FARM CART— *Spots Your Fuel Where You Need It*

Farmers save many hours by placing their fuel supply right where they need it with the well-baffled Nor-Tex Farm Cart. It is completely safe and easy to "spot" with car, truck or tractor. Complete with recessed relief valve, 12½' delivery hose, ¾" OIC valve and hose coupling. Mounted on a heavy duty axle with standard Chevrolet hub and 15" wheels. Sturdy I-beam tongue.

NOTE: All Nor-Tex Star Domestic Tanks of 500 WG or more include a convenient liquid line outlet for wet line connection to tractor fuel tank.



Make It Easy and Convenient for Customers to BUY and USE LP-Gas

Nor-Tex "PONIES" (strategically placed for best distribution) can substantially boost year 'round sales and quotas. Operate them yourself or arrange with highway service stations to dispense LP-Gas for you. Nor-Tex portable "PONIES" can be easily placed on farms, ranches, in truck and bus terminals and "on-the-job" for contractors and utility companies. Nor-Tex "PONIES" meet all requirements — U-69 — W250 Codes. Sizes: 500, 700, 1000, 2000, 3000 and 4000 WG. Available with your choice of pumps, meters and accessories.

TEXAS TANK CO.

DENTON, TEXAS **CENTRAL 5416**

YOU'RE AT THE FORK IN THE ROAD . . . NOW!

WARRENGAS
the Concentrated fuel

for

- FARM TRACTORS
- IRRIGATION ENGINES
- CROP DRYING
- TOBACCO CURING

Let us help you develop this business.

Call, wire or write . . .

SALES OFFICES

LOUISVILLE, KENTUCKY
ST. LOUIS, MISSOURI
FT. WORTH, TEXAS
NEW YORK, N. Y.
MADISON, WISCONSIN
JACKSON, MISSISSIPPI
HOUSTON, TEXAS
MIDLAND, TEXAS
OMAHA, NEBRASKA
COLUMBIA, SOUTH CAROLINA
TAMPA, FLORIDA

WARRENGAS
the Concentrated fuel
®

WARREN PETROLEUM CORPORATION

Tulsa, Oklahoma

Letters

BPN

Does gas have a deleterious effect on tile flues?

Wisconsin

I just hooked up a customer with a new stove, hot water heater and a 30,000-Btu space heater. The customer is satisfied with the equipment in every way.

This is the point: A friend of his has poisoned his mind by telling him that he will have to put a metal flue in his chimney. The flue he has now is a clay tile regular flue with brick around it. The friend said that the fumes from L. P. gas will eat the flue up. I told him that I didn't know and never heard of such a thing.

Please advise what you know about it.

L.S.

Your customer's friend has picked up a lot of misinformation about L. P. gas fumes and clay tile flues. Let's get a few facts straight.

Any fuel that we burn, whether it is wood, coal, oil, gasoline, natural gas, or bottled gas, consists mainly of carbon. The solid fuels contain minerals which form the ash after burning is complete and the liquid and gaseous fuels contain hydrogen. All fuels contain sulfur in varying amounts. Wood, coal, and oil generally contain considerably more than is present in gasoline, natural gas, or bottled gas.

When we burn these fuels the carbon combines with oxygen to make carbon dioxide, which is a gas and passes up the flue. Hydrogen, which is present in all of the petroleum fuels, combines with oxygen to make water vapor and this also passes up the flue. Of course, any moisture that is contained in the solid fuels is vaporized into steam and is carried away with the combustion products. Incomplete combustion results in soot, which is always present in burning wood and coal and is generally present in burning oil. There is no soot produced with a properly adjusted gas burner.

L. P. gas produces the cleanest flue products of any of these fuels. It is rather difficult to see why the flue products of gas should be damaging to a tile chimney. The drain tiles, which are used in so many farms up in your country, are also made of clay tile. They are subject to the constant action of water as liquid, and carbon dioxide in solution in this water and we have not heard of any properly burned clay tile, used in drainage, which has been damaged by the solutions that they carry.

Now let's consider the real reasons why so many gas installations are made with metal liners inserted in brick or tile chimneys. Most of these previously existing chimneys are oversize for the gas appliances which are generally installed in these homes. An oversized chimney is not good with any burner and it is particularly undesirable with oil or gas fires.

Also, if the chimney happens to be porous there may be conditions under which the moist fumes from an oil or a gas fire will condense inside the chimney and soak through, spoiling the wallpaper or the paint on the room wall. These are the real reasons why it is desirable to put a metal liner in the brick and tile chimneys.

When, and if, a liner is put in a brick chimney, it should be a good one, made of noncorroding materials and of the double air insulated type, so it will retain maximum efficiency.—Ed.

Noise not in tank

Mexico

We are L. P. gas distributors, and recently one of our customers complained to us that one of his cylinders of 20-gal. capacity and approximately half full made strange sounds.

The sound or noise came from within the tank; we would appreciate your view on this matter.

L.C.

We cannot think of anything inside the container itself making the strange noises that your customer seems to think are coming from the tank.

Sounds may actually be coming from some place else, such as the regulator, somewhere in the piping or connecting tubing, making it seem that the noise is coming from the tank. Noise will often telegraph along the piping or tubing and seem to come from another source.

Since we do not know what type of noise is referred to, it does not give us much information from which to try to analyze your problem. We are inclined to believe, however, that you should look some place outside the cylinder, such as in the valve seat of the cylinder valve, or the valve of the regulator, or some other place. A loose or vibrating valve seat may rattle, buzz, or hum.—Ed.

Electric tyranny

Georgia

We spend each and every working day telling our friends, customers and prospects the wonderful things about L. P. gas. We say it's tops for carburetion, water heating, running tractors, stationary engines, irrigation pumps and all kinds of power.

Yet, when we start planning to install a bulk plant we are told we will have to install a 5-hp, 3-phase electric motor to run our pumps and/or compressors. Why? If L. P. gas is good for our customers, why not for ourselves?

The spot we have chosen for our bulk plant is somewhat isolated (from choice) and the power company immediately begins hollering about the expense of building transmission lines and the non-availability of 3-phase current in that vicinity, their inability to give us a transformer, etc.

This is an old story to the writer as I have gone through the same thing several times in my years in the L. P. gas business. It's always the same story regardless of the location. The truth is that the power people want to put every possible obstacle in our way.

Please, if you know any answer to this problem, let us have it, as our need is pressing.

K.M.S.

If your state industrial accident commission, or whatever other body has supervision over your plant installation, will believe what the Underwriters Laboratories tells them, you can be independent of the power ocmpany and operate your transfer pump on propane.

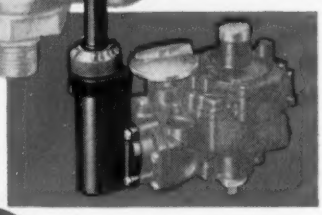
Both Corken and Smith Precision Products manufacture pumps with internal

Sell more space heaters with *NEW 55 GASAPACK'S*

3-WAY COMFORT APPEAL!

55 MTS Modulating Snap Thermostat

Operated by a sensitive thermo-bulb, the MTS modulates the fire from high to low . . . quietly snaps off when the low fire is no longer required. Absolutely silent. *All accessories can be factory- or-dealer attached without breaking the line!*

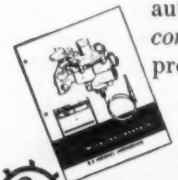


55 MT **MODULATING THERMOSTAT**

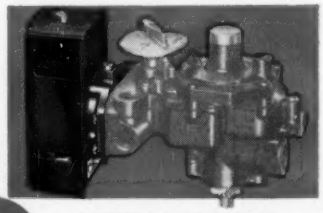
A liquid-charged thermo bulb modulates the flame between high and low fire, maintaining a constant comfortable temperature, despite fluctuating outside temperatures. No wiring required.

Not one — *but three* — exclusive A-P automatic accessories help you sell more heating appliances. Customers can choose the *exact* temperature control desired. Besides, you offer 100% safe lighting and operation.

You'll save money, too, because the basic 55 Gasapack combines pressure regulator for city gas, large pilot filter, 100% automatic pilot, main and pilot shutoffs in *one self-contained unit.* You eliminate extra assembly...lower production and inventory costs.



• The A.G.A. listed 55 Gasapack has many other important features that can improve the performance of your gas appliance — write for a copy of newest bulletin.



55 ET **ELECTRIC THERMOSTAT**

A low-voltage wall thermostat controls the flame. Control can be set to operate from high fire to off, or from high fire to low bypass flame, depending on the need. Complete kit includes electric operator plus thermostat, plug-in transformer, wire and staples.

DEPENDABLE *Controls* — *For Air • Liquids • Gases • Refrigerants*

A-P CONTROLS CORPORATION

2542 North 32nd Street, Milwaukee, Wisconsin

combustion engine drive. These have approved shielding on the ignition system and approved spark arresters on the intake and exhaust. If used as originally equipped, they are safe for operation in bulk plants.

We suggest that you secure the information on these pumps from the manufacturer of your choice, and take it up with the safety inspector of your regulatory body.—Ed.

Lead welding with L. P. gas

Ontario, Canada

We would appreciate receiving a copy of your booklet No. 8, "Industrial Applications." The problem we have in mind is how to use L. P. gas to replace hydrogen for lead welding. If this is not covered in your booklet perhaps you could suggest other sources for the information.

H.W.T.

"Industrial Applications" does not contain anything on the welding of lead but we believe you will find it quite interesting and of service to you.

L. P. gases, both propane and butane, are being used for fusing and welding lead in several of our large storage battery manufacturing plants in this country. They have found it the most satisfactory for this work from both the economical and production result standpoints.

A member of one of these plants states they have used acetylene, hydrogen, butane and propane and find the L. P. gases most suitable. It was stated that hydrogen had a small advantage when very small areas required welding.—Ed.

Cylinder care

New York

One of our agents abroad would like to have information on the following:

A) Maintenance procedures and systems for the LPG 100-lb cylinders; in other words, whether or not in each replacement of cylinder, this is taken to a shop for adjustment of the valve, painting and repair it, if necessary.

B) Whether or not trucks transporting same type of cylinders are equipped with some automatic device for unloading them, thus avoiding damages in handling, mainly when cylinders are full.

A.O.M.

The Pressed Steel Tank Co., 1445 South 66th St., Milwaukee, Wis., has published a very informative brochure entitled "Cylinder Tips." This brochure is well illustrated, but concise, and covers all phases of handling, testing and maintaining cylinders.

The Pressed Steel Tank Co. will be pleased to send you copies if you will write and request them.—Ed.

What are normal filling losses?

New York

We would appreciate you advising us the per cent of loss of gas, in a company like ours, servicing 1200 customers monthly.

All of our accounts carry tanks that hold 100 lb of gas. These are filled at a bulk filling station, and delivered to us. We in turn supply our customers, as needed, with about 90% using the meter system. We have noted a loss in our handling tanks in this procedure, and would like to know the normal loss, as experienced by other companies.

Would also appreciate you advising us where we may obtain a scale to weigh these tanks.

E.P.M.

There should be little loss connected with the type of service you are furnishing. However, there are several items which may produce some of the losses you are encountering.

Your supplier may have inaccuracies in the scales used when filling the cylinders; he may be careless about filling the cylinders and not supplying the correct quantities; or cylinder valves may not be closed tightly so that there is leakage between the time they are filled and are placed in service. After you have received them, there is the possibility of leakage through the cylinder valves, and again after the cylinders are connected, leakage can occur at the connections and in the piping.

Considerable loss can occur if the cylinders are removed before they are completely empty and returned to your supplier without obtaining credit for the returned fuel. Also, after the cylinders have been in service for some time, heavy ends often build up in them, adding to the tare weight of the cylinder. Then if your supplier uses the tare weight stamped on the cylinder for filling, you will be shorted. The answer to this condition is, of course, to clean the cylinder.

The conversion of vapor metered to weight may be affecting your results. This, of course, depends on the fuel being supplied and the gear ratio in the meters. Pure propane will produce about 8.62 cu ft of vapor per lb of liquid or 36.45 cu ft per gallon, whereas normal butane will produce 6.54 cu ft per lb or 31.79 cu ft per gallon.

Mixtures of propane and butane will produce volumes of vapor somewhere between the above sets of figures, depending upon the mixture. A study of the fuel and meters should be made to determine if any error is entering your results from this source.

It is advisable for you to obtain a good scale and check at least a portion of your cylinders both when filled and when empty. Any good platform scale such as manufactured by Howe or Fairbanks-Morse is suitable. It should be checked by a certified sealer of weights and measures.—Ed.

Interchanging natural gas and LPG

Sweden

We should be grateful if you would help us in another matter. For generating endothermic carburizing gas (in USA usually made from natural gas) we intend to use propane or butane because we have no natural gas in Sweden.

As we have to use a delicate catalytic cracking process with a nickel catalyst in the production of carrier or caburizing atmosphere, it is very important for us to find out which difficulties arise by using L. P. gas instead of natural gas (poisoning of the catalyst, sooting in the generator and non-permitted variations in the gas composition are important questions.

T.H.

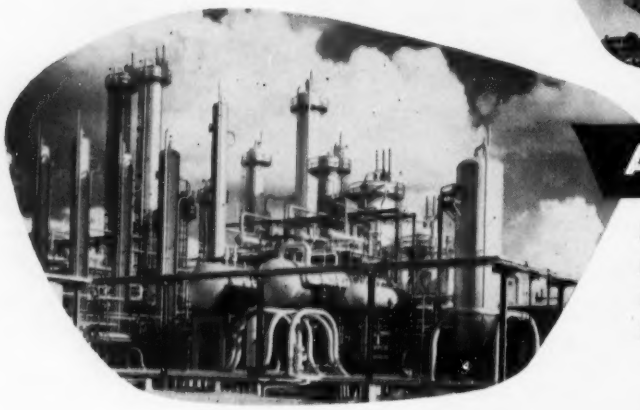
L. P. gas has been used in place of natural gas for special furnace atmospheres in many cases. In some of the factories in this country the natural gas supply is curtailed at times, especially during the winter months. The plants—some of them with heat treating furnaces such as you describe—have L. P. gas standby plants to supply their fuel during these periods of curtailment. The L. P. gas is diluted with air to a pre-calculated mixture that replaces the natural gas without changing the furnace burners or controls.

Also, many of our cities which serve natural gas, peak load shave with L. P. gas-air mixtures. Other towns and cities supply L. P. gas as the utility fuel and in so doing serve industries which heat treat with prepared atmospheres.

The L. P. gases, as you well know, are of the same family of hydrocarbons as the natural gas and therefore should act in a like manner. The main source of trouble would probably come from impurities such as sulfur, oily compounds, etc., that are not removed at the refinery.—Ed.

SERVICE

Tuloma representatives take a personal interest in your operations. They see to it that a Tuloma customer is a satisfied customer.

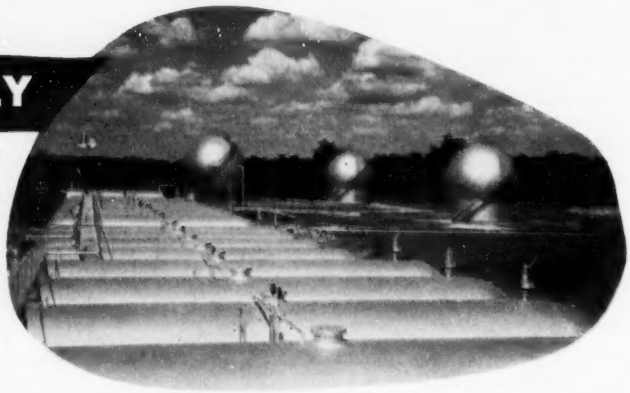


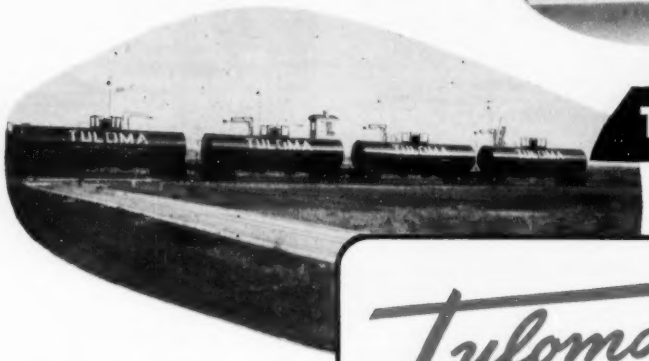
AVAILABILITY

Strategically located sources of supply are among the largest and most modern plant and refinery facilities in the nation.

SUPPLY

Huge volumes of TULOMA LP-GAS are stored in installations both above and underground for delivery to contract customers everywhere.





TRANSPORTATION

Throughout the nation TULOMA LP-GAS is delivered on schedule in clean, modern tank cars from a continually expanding fleet.

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beyond the mains

BPN

ADD TO "THINGS THAT NEED TO BE DONE". What is the greatest opportunity ahead of the L.P. gas industry for the development of summer fuel sales through extension of weed burning activities? The most impressive thing we see as we ride across the country and watch the weeds go by is Johnson grass. It may not be the world's greatest agricultural pest, but it is certainly a strong contender. It continues to spread in spite of tremendous sums spent researching into its control. Few farms in our leading agricultural states have been kept free from its inroads. A satisfactory control which will include burning could increase L.P. gas sales tremendously during the summer months, and make customers of many farmers whose operations are otherwise thoroughly electrified.

And what do we know about the control of Johnson grass? Very little. But we have seen cases where burning the tops with a propane torch has given partial control. Some plants died, and some survived. Because some of the plants were killed, we believe that with proper knowledge and improved technique it will be possible to kill all plants in a treated area. But we must first know why the dead plants were killed and why the surviving plants are still alive. There must be certain conditions under which burning the tops will result in sure death to the perennial roots. What are those conditions? What will be the cost of a complete kill, and will it be justified? Will the treatment that is effective in Arizona be equally certain in Nebraska, Mississippi and all the other agricultural states where Johnson grass has become a problem?

We believe that this matter is of sufficient importance to our industry that a broad scale research program should be set up to determine the facts. The United States Department of Agriculture and the state agricultural experiment stations are already doing a great deal of work on weed control. The agricultural extension service in various states takes the research findings to the farmers, through individual contacts and through district meetings. Today the chemical industry dominates this research,and chemical control of the various weeds gets nearly all of the attention at the district meetings. How come? Is our industry sound asleep on this golden opportunity?

Continued

beyond the mains

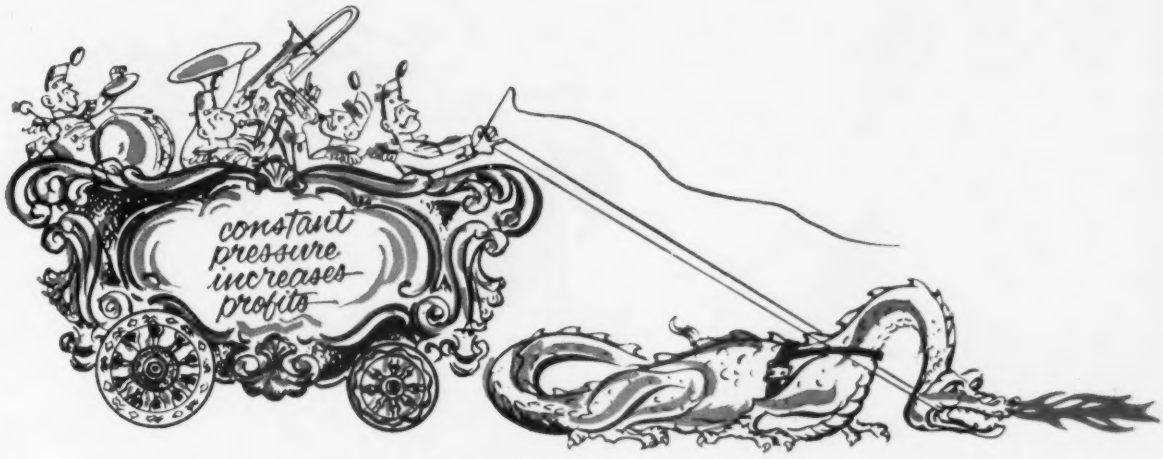
Weed control by flaming with propane is the fastest developing means for increasing summer loads, and with proper promotion and guidance it can be many times as large in the next few years. But our knowledge of weed control, while improving, is still pitifully inadequate. Fuel consumption in weed control could grow much faster if a coordinated nationwide research program could be set up to determine the facts, followed through by the services available to us which are now being utilized mainly by the chemical weed control people.

Since this is a nationwide problem and the benefits would accrue to L.P. gas dealers everywhere, it sounds like a logical undertaking for the new Load Balancing Division of the LPGA Marketers Section. And confidentially, a few such grassroots projects brought to a successful conclusion would make the job of getting and keeping membership in the association considerably easier.

FARM INCOME HAS BEEN SHRINKING. Farmers' incomes must now be held in line by reducing producton costs. For the average farmer the biggest single item of cash outlay is the fuel bill for his tractors. Along with this he must think of his costs for fighting weeds, or accepting the drop in production caused by his falure to control weeds. And these are the two biggest volume means at your disposal to increase your summer fuel sales and balance up your seasonal load. What a perfect set-up for the solution of your customers' problems and your problems -- and you will both profit. But it will take aggressive selling. The special Agricultural Flaming Section in this issue will give you a broad range of information to help you sell propane for weed control. And the Power Department has information every month to help you sell tractor carburetion.

THE STEEL INDUSTRY PREDICTS ANOTHER YEAR OF SHORT SUPPLY. Unless you plan ahead and arrange for delivery of tanks to meet your seasonal requirements you may not be able to get them when you need them. The purchase of tanks takes money, and unless you plan your finances ahead you may not have that when you need it. It will be time well spent to talk this problem over with your banker, and get your orders placed and the financing arranged in advance.

Earl Abell



Get on the *SELLING* Bandwagon!

Charlie Wilkerson, President,
Charlie Wilkerson Gas Company, Inc.,
Pensacola, Florida

"...I especially wish to congratulate you on your recent development of the Delta Control Unit. (Delta Blu-Blaze System). We have received tremendous response on this unit because of the sales story we have to tell. Here are some of the results that we have achieved:

"Since the introduction of the Delta Control Unit our sales have increased 22% over our normal expectation.

"We have not had a single service call on any tank equipped with this unit due to freeze-ups, and I can assure you that in the past this was a major problem..."

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In addition to supplying CONSTANT PRESSURE in gas supply to appliances, Delta's BLU-BLAZE System has been supplying CONSTANT PRESSURE on Sales for many dealers. A hard-hitting selling portfolio of sales-proven techniques is making Profits for others. It can do the same for you.

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Is a pretty sharp guy,
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Price alone doesn't make for big value — as many of us know. Sure, price should be considered, but what's more important is what you get for your money.

Take *TEXGAS* for instance. When you buy *TEXGAS* from Texas Natural you're sure of getting highest quality Propane and Butane—always; you know you'll receive top notch service; and you can rely on dependable delivery. These three features alone make for *BIG VALUE* in LP-Gas — *but TEXGAS offers even more.* A competitive price is part of it.

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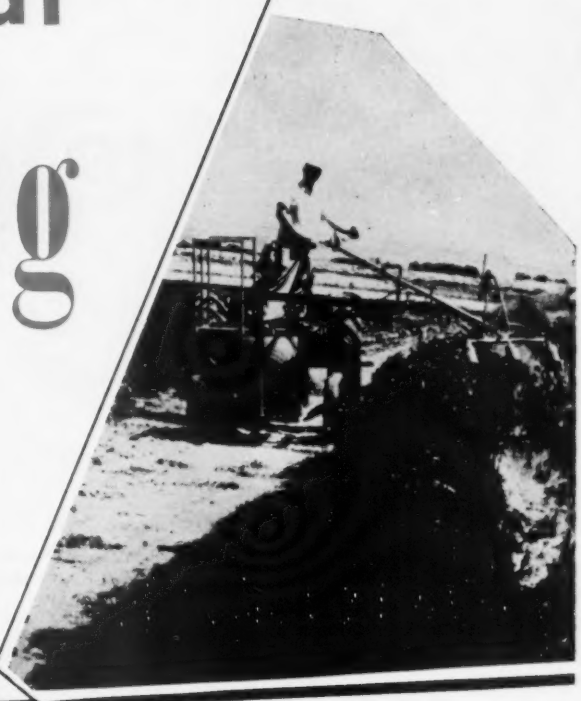
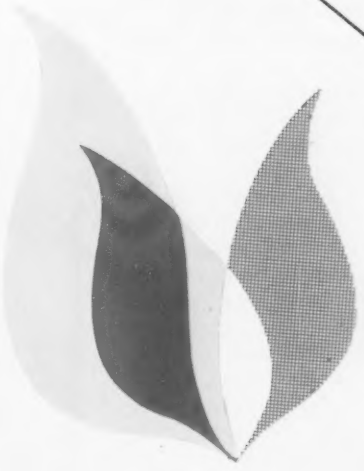
agricultural Flaming



By Carl Abell • Editor

BPN seasonal feature



Here is what you need to sell your way to a balanced load. It is the greatest consumer of summer fuel that has been developed in the industry. It must be demonstrated to sell, because the truth is beyond belief. And the fuel consumption is also beyond belief. It is the most rapidly developing new market for propane in recent years. We are proud to have been its industry sponsor.

Agricultural flaming equipment is building summer loads for dealers at a tremendous rate. This ditchbank burning machine, operated by one man, consumes up to 60 gal. of propane per hour.

The big opportunity

ONE year ago we told you that agricultural flaming was one of the most rapidly growing markets for liquefied petroleum gas. We can now tell you that the expansion of these activities during 1955 has put all previous records in eclipse. Agricultural flaming is without question the most rapidly developing branch of the industry. And nearly all of this fuel is burned during the months when it will do the most good in offsetting the winter househeating load.

While this activity has shown its greatest growth in the West and the Southwest, it has no geographical limitations. It can be profitably employed anywhere that people cultivate land or raise poultry. The same basic equipment can be adapted to perform essential operations in street and highway maintenance wherever asphalt is used for paving, and in roofing and other construction activities. New uses for torches and burners of the type used in weed and insect control on farms are constantly being developed by ingenious gasmen. Problems and headwork lead to answers, and these answers lead to sales. Volume follows, and in the case of agricultural burning equipment the volume of gas that can be sold staggers the imagination.

Our agricultural flaming article in the March 1955 issue included extensive discussion of the use of ditchbank burning equipment. The experience related at that time was confined largely to the use of these machines in keeping the weeds under control along irrigation canals and ditches. Does that confine their usefulness to the irrigation projects of the West? Not at all. The Midwest and the South are also turning to irrigation for crop insurance during drouth years, and a great many of these projects—both public and private—use ditches that become overgrown with weeds, wasting the water and spreading weed seeds into the crop areas. And if you do not have irrigation ditches in your area there are still tremendous potential uses for these ditchbank burning machines, in senior and junior sizes.

If your territory does not need irrigation it is probably so wet in spots that it requires drainage. Drainage ditches also become choked with weeds, which require periodic clearing so they can keep the water level down. And there is no other means of keeping the weeds and brush cleaned up along highways and rights of way that is as effective and economical and at the same time as free from hazards of pollution of water supplies or damage to crops, as is burning with L. P. gas under properly controlled conditions. Gas flame will do the job where herbicidal chemicals cannot be used, and where mechanical means of control are hopelessly expensive.

New knowledge of the use of L. P. gas-fired flaming equipment for weed control in field crops and row crops shows that it may be profitably employed in the market garden areas of New Jersey, the potato fields of

Weed control in field crops like alfalfa offers a tremendous fuel market. These big flaming machines consume as much as 80 gal. per hour yet save the farmer tremendous amounts.

Maine and Idaho, in the corn and wheat areas of the North Central states, and in pasture and range lands everywhere. And wherever poultry is grown commercially there are operations that can still show savings and dollar benefits and volume consumption even though the gas must be supplied in cylinders and at the comparatively high prices necessary with bottlegas operation.

With the growth of this activity in the past year we have seen the development of new equipment, the improvement of previous types of equipment, and a tremendous increase in the knowledge of their effective use. Along with this we now have a clearer picture of what we do not know, but need to find out. And this is greater by far than what we have already learned.

Much of the information on the pages that follow is new knowledge that has been developed or extended during the past year. Somewhere on those pages you will find information that will help you to play a merrier and more harmonious tune on your cash register. Agricultural-type burners and torches can build gas sales for *you*.

Basic types of equipment

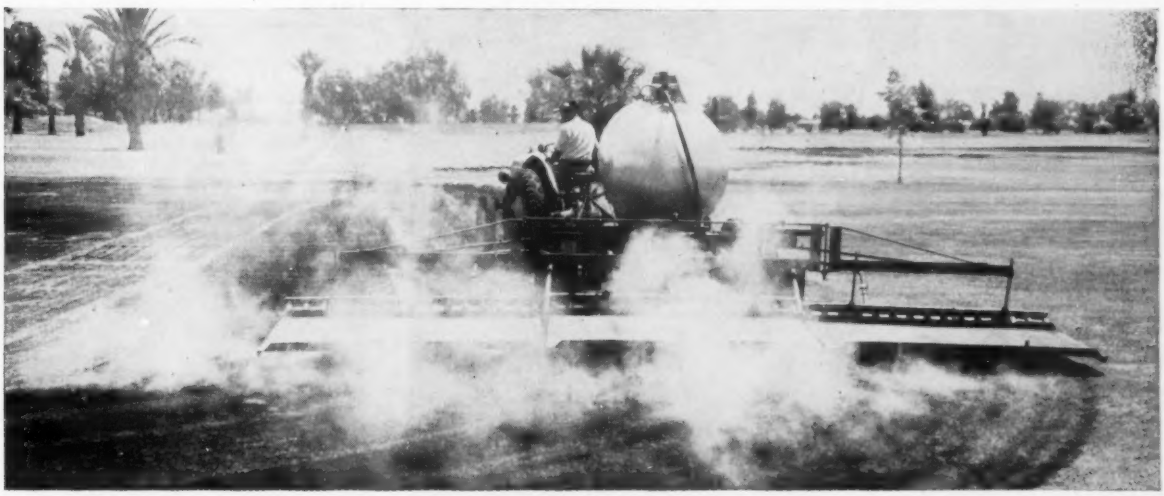
The starting point of all agricultural flaming equipment is the flamethrower type burner. These are made in various sizes and shapes to fit the particular needs to which the equipment will be adapted, but they have two characteristics in common—they throw a high velocity flame and they consume a large amount of fuel to develop a high temperature. They may be used singly as hand torches, or they may be mounted in multiples to conform to the cultural practices in various crops or to cover larger areas without a corresponding increase in the manpower required for their operation. Some of the larger field-burning machines have more than 30 burners manifolded together, and cover swaths up to 25 ft in width. Some of the larger burners now in use will throw a flame 8 to 10 ft long, while special burners developed for close work on cotton rows and other row crops produce a flat flame only a few inches wide and approximately a foot long. New burner designs are constantly appearing on the market.

Single burners used on intermittent or light work generally operate on the vapor developed in the fuel container, and may be supplied from any size container from a light backpack outfit, through the various size ICC cylinders, up to trailer-mounted 250-gal. tanks. The latter are generally selected for more continuous work such as clearing farm ditches, roadways, turnrows and larger areas of weed infestation in pastures, dodder control in alfalfa, and similar uses.

The larger ditchbank machines consist of a gang of burners on a boom or manifold. This is swiveled on the end of a boom which may be moved either vertically or horizontally, so any desired area may be reached. Remote controls enable the operator to change the position of the burner manifold and the direction of the flame to get effective coverage over the entire contour of the ditchbank. Some of these machines are trailer mounted, along with the fuel tank. These require two men for operation. Other outfits may be mounted on a tractor or a truck chassis, and are equipped with hydraulic controls which permit one-man operation of the entire outfit.

Machines used for field flaming operations vary considerably according to the need for fitting the cultural conditions of the various crops. For flat field culture of crops like alfalfa and permanent pastures, the machines are built with a single row of burners on a long boom, with the burners spaced to secure continuous coverage across the entire width, which may be as much as 25 ft. For crops grown on beds, such as strawberries, the machines are made smaller, with smaller burners arranged to fit the contours of the beds and ditches.

Machines for use in row-crops are ordinarily designed with flat burners throwing flame across the drill rows practically at ground level. The burners are staggered so the flames will not meet and cause an upsurge of heat that might injure the plants of corn, cotton and similar crops. A newer development is a machine designed for use in root crop cultivation, in which a flattened burner di-



Control of weeds in golf courses provides additional seasonal use for the flat field burner. (Manchester Welding and Fabricating Co.)

rects flame down on top of the plant row, burning the foliage of the crop plants along with the weeds that are to be killed.

With the development of increased knowledge of the use of agricultural flaming equipment we may expect to see continued improvements of currently produced equipment, and new adaptations to additional cultural problems. This is a fast moving, new branch of utilization of L. P. gas, and we may expect to see progress continue in high gear for a number of years.

Principles of agricultural flaming

Agricultural flaming for the control of weeds is actually selective burning under conditions which destroy the weed but leave the crop. The procedure varies with the different crops and with the size and condition of both the crop plants and the weeds. Flame cultivation is seldom a one-time process that accomplishes miracles. Ordinarily it must be carried out as a consistent program over a relatively long period. To the farmer it is simply another method of controlling the weeds in his acres which will generally enable him to cover more ground in less time and usually at less cost. In some cases the control is far better than may be obtained by other methods. Its success depends on the difference in tolerance to the heat of the flame between the crop to be protected and the weeds to be destroyed. These differences are sometimes temporary so it becomes important to time the operation rather carefully.

With certain crops the flaming begins with pre-emergence burning over the plant rows. This, as the term indicates, consists of burning off the young tender weeds that have sprouted before the crops have made their appearance above the surface. Weeds continue to sprout throughout most of the season from seeds imbedded in the upper half inch of the soil. Annual weeds and the young seedlings of perennial weeds are generally very delicate when they are young and may be burned quite easily without injury to the crops if the crop plants have made sufficient headway before the burning takes place. The most successful control of annual weeds in cultivated crops is by means of repeated burning at intervals of several days or two or three weeks during the spring and early summer when nearly all of the sprouting of new weed seeds takes place.

Control of established perennial weeds is a different and sometimes very difficult matter. Many of these will sprout repeatedly from lateral roots extending over considerable distances underground. These can generally be killed out by repeated burning shortly after the new sprouts appear, in the same manner that mechanical control is made successful by cutting the tops off the weeds repeatedly with tillage tools and never allowing them to grow long enough to maintain a satisfactory supply of oxygen for the roots. This complete control is sometimes not possible on account of growth of crop plants in the infested area, so in these cases the weeds are discouraged instead of eradicated.

There are certain plants both in the annual and perennial groups which have long tap roots, heavy tap root structures or woody main roots which respond in an entirely different manner following burning of the surface growth. These include alfalfa, strawberries, root vegetables such as carrots and beets, onions, lilies, coarse thistles and, to some extent, Johnson grass. When the surface growth of these plants is killed by burning, the response of the plant appears to be first a general enlargement of the feeder root system followed by the emergence of either more numerous sprouts or more vigorous single sprouts per crown and, in either case, more vigorous growth follows. This is good or bad, depending on whether the plant under consideration is desirable or undesirable. But this manner of plant response should be considered in planning the control program. This characteristic will be considered later in the article in the discussions on each of the plants or types of weeds.

The stimulation of growth is a definite advantage in any of the crop plants and while we do not yet have too much information on the subject in connection with weeds, it does

Late season results of early season weed burning test in alfalfa. Left, burned; right, unburned. Below, typical stalks from both plots. (Rotary-Sierra Co.)

appear that the flaming operation makes the plants susceptible to use of chemical herbicides and weed oils in obtaining a more effective control.

In addition to new knowledge on the control of young and growing weeds, the past year's experience has uncovered information of very definite value in preventing future weed growth by proper burning of matured weeds for the purpose of killing the newly matured seeds. These details will be covered later in the article under the appropriate subheads.

Flame cultivation as applied to growing weeds is not intended to consume the weeds or grasses in the cultivated field. The object of flaming is to create a quick rise in temperature sufficiently high to rupture or damage the plant cells and thereby result in the death of the plant. Size, age and shape of the plants contribute to their resistance of susceptibility to heat. Young, tender weeds and grasses, especially young seedlings, are much easier to kill than older, tougher plants. Also a round object is more resistant to the killing effects of the heat than a flat one. This can be illustrated by the comparative ease of igniting or scorching a flat sheet of paper as compared to the same paper tightly rolled. Weeds, grass and vines that have been allowed to grow to the large and tough stage cannot be successfully burned out of crops without applying so much heat that the crops are also damaged. Successful weed control in cultivated crops is accomplished by a series of burnings which eliminate each new crop of seedlings shortly after they come out of the ground. Flame cultivation with most crops does not begin until the cultivated plant has reached a size, age or shape which permits effective killing of the weeds without material damage to the crop plants.

Flame weeding of row crops is generally done with tractor-mounted implements set so that the flaming operation is applied only to the rows, and cultivator tools are used between the rows. These cultivator tools should be so designed and used that they do not throw dirt into the rows, as this will also throw unsprouted seeds into the rows, which will complicate the weeding problem later on. It has also been observed that flame weeding is much more effective when the area that it is to cover is flat or only slightly crowned, and smooth. Sharp ridges, or clods thrown into the area by the cultivators will not protect weeds from the flame but also tend to deflect it up into the lower structure of the crop plants.

Alfalfa

One of the most outstanding successful applications of flame in weed control has been in the alfalfa fields of the West and Southwest. The first reports concerning this practice and its benefits were confined largely to flaming of the fields at the time growth was starting in the spring. This was done primarily to eliminate the early sprouting weeds which were harvested with the first cutting and caused a down-grading of the crop and loss of revenue to the producer. There were secondary benefits noted in the control of insects which wintered over in the alfalfa stubble and in the trash lying on the ground.

Protection of the first cutting is still the major economic benefit to be derived from flaming alfalfa, but experience shows that there are also very worthwhile benefits to be derived by burning between crops in areas where weeds grow extensively later in the season.

In many cases, particularly in the northern states, flaming should be delayed until after the first cutting. The earlier growing alfalfa will shade the top soil and prevent the germination of annual seeds until this cutting is removed. However, immediately after this cutting, with ample sunlight, these weed seeds will sprout rapidly and vigorously producing an abundant growth above ground. This is the time they are most susceptible to flaming . . . the time flaming can be most effectively and economically applied to the field. In some instances, it is advisable to cut hay prematurely and allow annual seeds to germinate and sprout so that flaming can be applied earlier in the grownig season.

Alfalfa is one of the crops previously mentioned in which flaming the surface growth causes extreme multiplication of sprouts below the surface of the ground and stimulation of

Large hand burner throwing flame up to 12 ft working on bindweed in fencerow. It can cover more than 2 miles per hour.

growth of feeder roots, and this benefit has been noted in treatment of crops between cuttings throughout the year. This effect is so pronounced that, in quite a number of cases, fields that were about to be abandoned have been restored to profitable production, thus extending the life of the planting for one or two additional years after the field would otherwise have had to be plowed up and replanted or put in other crops.

The rapid spread of the spotted clover aphid in the alfalfa fields of New Mexico, Arizona and California has now gone beyond any available means of control either by chemicals or flame. While flaming a field will kill all the aphids then present in the alfalfa and thus lead to improvement of the next crop to be cut, the ease with which new infestation may be established, and the rapid multiplication of this pest, has given us a problem which will probably not be solved until the aphid-resistant strains of alfalfa which have been developed can be multiplied enough to supply seed for reestablishing most of the alfalfa fields of the affected area.

The most efficient equipment for flaming alfalfa that is grown for hay is the boom-type field burner which covers a wide swath with uniform

Field burning machine with side burner manifolds and hovers folded to permit travel on roads through narrow gates. (Manchester).

flame. Alfalfa seed fields present a somewhat different problem, in that when grown for seed the alfalfa is grown on ridges with shallow ditches between the rows of plants. These ditches must be kept free from weeds in order to permit efficient irrigation. The seed alfalfa grows throughout the summer and is harvested late in the summer, so the weeding of the ditches presents a special problem, requiring small burners positioned to clear the ditches without appreciably affecting the desired seed plants. Alfalfa seeds fall into the ditches and growth of alfalfa from these seeds is undesirable. These young plants must be considered on the same basis as weeds and removed frequently enough to keep the ditches open. Flaming is a very effective means of killing the undesirable alfalfa plants but they must be caught while still quite young.

In some places dodder is a serious alfalfa pest, but the infestations come in patches instead of uniformly throughout the field. Small patches can be effectively cleaned up by means of a hand torch at any stage of the crop growth, and the loss of the production is then confined to the area treated. Fertilization and irrigation following flaming tend to produce a heavy growth of new plants which shade the ground and reduce the likelihood of reinfestation from growth of any dodder seeds that may have been scattered in the area during burning.

Alfalfa growers who make extensive use of flaming report considerably less loss due to alfalfa weevils, cabbage worms, cut worms and other insects which feed on the leaves or juices of the alfalfa.

Cotton, row crops

Flame cultivation of cotton as protection against weed growth has seen a considerable upsurge during the last year, particularly in the West and Southwest. The successful use of flaming in cotton depends partly on the weather, as the operations must be timed correctly in relation to new weed growth. In regions where heavy rains occur during the early growing season of the cotton, it is sometimes impossible to get power tools on the field at the time when the weeding should be done. This reduces the effectiveness of flaming as a means of controlling weeds.

In the arid cotton-producing regions these weather conditions do not interrupt the schedule of flaming and the weed control under these conditions can be highly successful.

Flame weeding of cotton has been undergoing test and development work in the San Joaquin valley of California for the past several years. The 1955 season has seen renewed impetus both in the adaptation of flame weeding equipment to California conditions and in the compilation of data on field tests. Based on the results of these tests it appears that a four-row flame cultivator offers a potential fuel consumption of approximately 20,000 gal. per season under San Joaquin valley conditions. It shows a substantial saving compared with other methods of weed control, and there are good indications that the use of flame cultivation throughout large areas will eliminate the need for at least one application of insecticides, with a resultant saving of approximately $10 per acre in addition to the saving in weed control costs.

We have the following interesting report on a series of flame weeding tests from this area:

"In 1955, we saw extensive field testing, under both favorable and unfavorable conditions, of the practice of flame weeding of cotton crops. Eight individual cotton flaming tests in the San Joaquin valley's westside area were supervised by the engineers and field representatives of the Van Horn Butane Service of Fresno, Calif. Each test consisted of five flamings at three-week intervals.

"Although there was evidence that spraying for insects may be eliminated when the cotton crop is flamed, the prime purpose of these tests was to determine the relative cost of flame weeding against other weeding methods. Also, it was most important to determine what effect, if any, flaming would have upon crop yields and grade.

"One cotton farmer reported 20% increase in yield in the flamed area and another farm operator reported that he received $24.50 per bale more this year than last year as a result of grade improvement. However, it appears that the improvements were primarily a result of weed elimination; the higher grade and greater yield were common to all weed-free fields regardless of method used. The most startling results of these field tests were the drastic reduction of weed control costs.

"Don Bennett, who farms 500 acres of cotton in the Firebaugh-Dos Palos area reported that he flame weeded 116 acres five times during the 1955 season at a total cost of $5.50 per

acre. Hand chopping costs in his other acreage under comparable weed conditions ran him $22 per acre. 'Regardless of improved yield and grade and regardless of any savings in insect spraying,' Mr. Bennett stated, 'flame weeding in 1956 will save me $8000 over any other known control method. I am going to flame weed all my cotton and my brother, Hugh, and most of our neighbors are going to do the same thing.'

"These 1955 tests were made with Kil-Burn model FM-4 equipped with a water-heated vaporizer using the circulation system of the tractor engine . Pressures were varied from 30 lb to 50 lb and speeds of the tractor were never less than 2½ mph or over 3½ mph, depending on the height of the weed. On the 4-row machines with pressures at 50 lb and speed of the tractor at 3½ mph, fuel averages were 6 gal. of propane per acre. Fields were flamed five times during the season. Flaming started when cotton was about 8 in. in height or about 3/16 in. in diameter and no damage to stalks was noticed at any time; however, we believe that by reducing the pressure to 30 lb and driving tractor at 4 mph that no damage to 4-in. to 6-in. cotton will occur."

Cotton flaming machines have been built in several sizes covering two to five rows. It is generally considered that for each row covered by the flaming machine, it replaces 10 hand workers using hoes. A great deal of test and research work has been done by the U. S. Department of Agriculture and several state agriculture experiment stations, both in the development of improved flaming equipment and in perfecting the methods of use of these machines. Some of the results of this extensive work are applicable to the use of flame weeders for other row crops.

Corn

The flame weeding of corn follows the same general principles as are practiced in cotton production. Generally speaking, farmers are not so particular about keeping the weeds out of corn as with other crops, but the past few years have demonstrated clearly that in seasons of subnormal rainfall the competition of weeds for the water that should be available for corn is a serious factor in reducing the crop. Flame cultivation of corn offers the most economical means of keeping the maximum of moisture and soil nutrients available to produce corn instead of weeds.

Root vegetables—carrots, beets, etc.

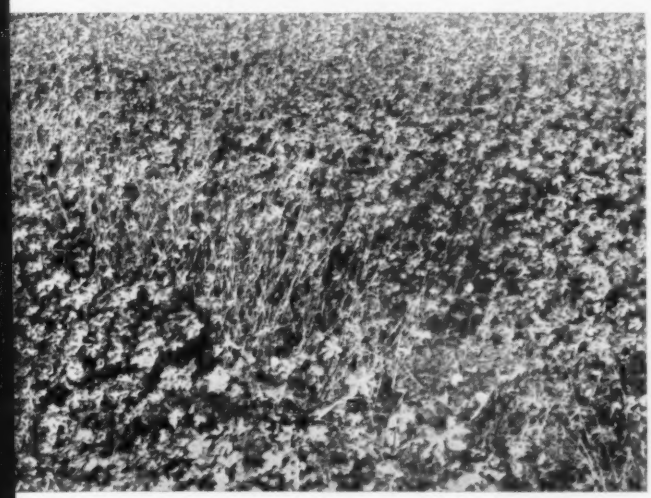
There is not a great deal of information available yet regarding the use of flame cultivation in keeping weeds out of these crops. Small scale tests have shown, however, that there is definitely room for the development of a substantial gas market in areas where these crops are grown extensively. Small-scale tests have shown that the roots are highly resistant to the effect of flame and that the tops may be burned right down with the weeds. It is the nature of these plants to send up new leaves through the center of the cluster of leaves already formed.

There is substantial evidence that flaming the tops results in stimulation of root growth followed by invigoration of the entire plant, resulting in an overall gain in the weight of the root portion.

Ben Brunner of Manchester Welding & Fabricating Co. reports a field of carrots near Hemet, Calif., which the owner had given up because the weeds had overgrown the carrots. As a test, the combined vegetable and weed growth on one-half of this field was burned to the ground with an alfalfa flaming machine. The weeds were thoroughly cleaned out and within a week new growth appeared from the carrot roots. Following normal irrigation and cultivation, this turned out to be one of the most productive carrot fields in the area. The other half of the field which had not been burned was a total loss.

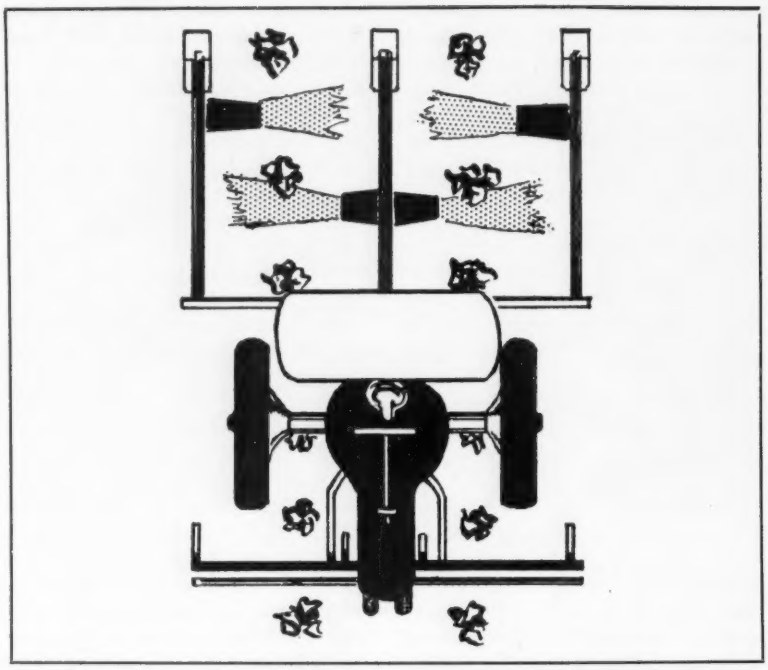
Pre-emergence burning of carrot fields prior to the appearance of the carrot seedlings has been quite successful in controlling early weed growth, and it appears quite possible that a combination of this and a subsequent burn after the carrots have developed roots resistant enough to live through the flaming, would provide an almost complete control of weeds in the carrot fields.

Various small scale tests have been



Typical section of Bennet's adjoining hand chopped field. All other treatment was identical. Flame weeding saved $16.50 per acre and did a better job.

Portion of Don Bennet's 116-acre field which was flame weeded five times at three-week intervals. Note dense stand of cotton plants and absence of weeds.



For tall crops like cotton and corn, flame cultivators have staggered burners so heat will not rise into crop plants.

Single burner aimed straight down on row may be used to kill weeds in sugar beets. The beets will send out new growth, as in photo below.

conducted with sugar beets, but in most cases these have been conducted under adverse weather conditions and the results do not yet appear to be conclusive. It has been definitely shown that sugar beets may be burned to the ground as many as three times early in the season and still come back and produce a reasonably good crop.

George Heberlein, Heberlein Manufacturing Co., reports a test conducted near Ault, Colo., under observation of the Great Western Sugar Co. The flaming in these tests was done with an especially adapted tractor attachment with flattened burners putting a fan of flame directly on top of the sugar beet rows. One acre test plot was badly infested with grass and "red root weed." The owner had planned to disc this field out and plant another crop as it had not been possible for him to get anyone to hand weed the beets. Weather conditions did not permit the first of the flaming until June 7, which was some two or three weeks later than the test should have started. Dry weather and lack of irrigation water at the correct time had created a very uneven stand in the beet rows, with some of the beet plants already quite well developed and others just recently emerged from the ground. Regardless of age, the beet plants showed a remarkable ability to withstand flaming and come back with regrowth. The beets began to sprout new leaves about five days after burning. The weeds were completely eliminated. The field was burned three times during the summer as needed to control new weed growth and the plants went through these burnings without appreciable suffering. The final growth of foliage in this plot was taller than in a neighboring field which had been weeded by hand labor and had received its normal amount of irrigation. This in spite of the fact that there was not water enough available to carry out the complete irrigation schedule in the test plot.

After harvesting the beets from the test acre it was learned that the sugar content was about the same as in the adjoining field. Yield was lighter, which can possibly be attributed to the lack of proper irrigation. The cost of flaming represented a considerable saving compared with

Field burner does quick job in removing trash and killing weed seeds following grain harvest. (Heberlein Mfg. Co.)

hand labor used on the next field. The cost of fuel used in this test was approximately $1 for each of the three burnings.

The acreage devoted to sugar beets is tremendous and the development of a satisfactory technique for flame weeding the beets offers one of the really important opportunities to develop fuel sales through the control of weeds.

Onions

Additional information gathered during the past year confirms the previous observation that flaming provides the most satisfactory means of control yet developed in fighting the onion thrip. Burning for weed control may be done on a pre-emergence basis, but after the onion plants begin to appear they should not be flamed again until the stalks of the onions are about the size of a wooden pencil. The field may then be burned severely enough to get rid of the weeds and wilt the onion tops to the ground. This operation takes care of the thrip and aids materially in eliminating the weeds. Regrowth of weeds during the remainder of the season is a minor problem and it has been uniformly observed that the size of the onions is increased and a higher percentage of the bulbs falls in the top market grade.

Potatoes

Due to market conditions it is often to the best interest of the farmer to have an early harvest of his potatoes. This is particularly true in the large potato farming areas in Idaho and Maine, where the season is short and it is important to get the potatoes harvested before cold weather sets in. If potatoes are dug before they have a chance to fully mature, the skins are soft and easily damaged. This results in a high percentage of culls or a reduction in the market grade of the potatoes, which causes them to return to a lower price to the farmer. During seasons of high potato production these lower grade potatoes may be unprofitable, or in some cases not even salable.

The plants in a potato field do not all mature at exactly the same time. Those that mature early may have their quality impaired if they remain too long in the ground after the plants have died. The remaining green plants can be brought to maturity quickly by running a flaming machine over the field as soon as the majority of the plants have matured enough to wilt naturally. This flaming results in the speedy maturing of the potatoes under these green plants and in a few days the whole field is ready for harvesting with a crop of prime quality. The flamed tops dry quickly and this permits the harvesting machine to go through the field with minimum of clogging of the diggers with potato tops.

Vineyards and orchards

Throughout most of the irrigated territory and in some other portions of the country vineyards and orchards are ordinarily managed on a basis of clean cultivation. Weeds use up moisture and soil nutrients which are needed to produce the revenue crops. Where the soil can be reached by the power tillage tools the weeds are taken care of with ordinary cultivation. It is not desirable to run the tillage implements too close to the trees or vines because of possible damage to the shallow feeder roots. This leaves strips or patches of weeds

Small hand torch is invaluable aid in weed control in nurseries, truck gardens and around farm. (Mutual Liquid Gas Co.)

which need to be removed by some other method.

Grape leaves are quite tender and are susceptible to damage if flame is used too close to them. Flame weeding has not yet been made practical in the culture of the low growing varieties of grapes although it is used very effectively with those which are grown on trellises or other supports. Care must also be taken not to expose the bark of the grapevine to extreme temperature, so in order to accomplish satisfactory weeding of vineyards it is necessary to use rather small torches operated by hand. This is still much less expensive and a great deal faster than weeding with a hoe.

The patches of weeds not reached by cultivation in orchard work are generally larger than in vineyards, and require more continuous operation of the torch. While a domestic type cylinder may supply adequate fuel and sufficiently rapid vaporization for vineyard use, it is generally advisable to use a larger tank, preferably on a trailer, for orchard work. A larger burner may also be employed, as the trees have heavier bark and are less susceptible to injury from the flame.

Pastures, open fields

All over the country pastures have always been subject to infestation by various kinds of annual weeds. These frequently grow in well defined patches and in many cases the area which they occupy can no longer produce the valuable forage plants. Once well established these patches generally become larger year after year until substantial damage is done. A typical example of one type of these pasture pests is the foxtail, which is making serious inroads in the Northwest. This plant has been known to completely cover a pasture, rendering it useless for grazing as cattle will not feed where foxtail is prevalent.

Wilton Jackson of Northwest Fabricators Inc., Nyssa, Ore., reports that excellent results have been obtained by burning the foxtail patches during July when the plant is mature and the seed ready to scatter. While this patch treatment does not completely eliminate the weeds from the pasture it does put the major lost areas back into the production of beef instead of weeds and it will apparently be a number of years before the treatment must be repeated.

Other serious pasture weeds of the coarse thistle type such as Canada thistle and bull thistle are serious problems in pastures over large geographical areas. These heavy thistles cannot be successfully eradicated by burning alone as they grow heavy tap roots which are able to send up new growth following burning. The leaves of these heavy thistles are thick and full of sap, and because their flat structure deflects the flame, they protect quite a high percentage of the leaf area of the weed from damage by the flame. New leaves and finally the flower stalk continue to come up from the center of the leaf cluster as is the case with carrots and beets.

Burning alone has not been successful in combatting weeds of this type. Nor have they been successfully eliminated with weed-oil sprays. The weed-oil does little or no damage to the thistles because of the tough skin on the leaf and the large amount of moisture contained in its pulp.

Bert Presley of Rotary Sierra Co., Sacramento, Calif., reports that successful control of bull thistle has been effected by giving the infested area a heavy surface burning which damages the leaves in such a way that they then become susceptible to treatment from a weed-oil spray. During the past year his organization has achieved outstanding success in combatting thistles by spraying within two days after the burning takes place. The burning makes the affected surface of the weeds spongy and the oil spray soaks into this sponge from which it penetrates to the circulatory system of the plant. A severe flaming a few days after the oil spray burns the thistle right into the ground, and kills the root.

This experience opens up the possibility that there may be quite a number of other coarse weeds which are highly resistant to oil or chemical weed control methods, in which a combination of flaming and the weed-oil or toxic chemical might do an effective job where either of the methods used alone is practically without results.

Fred Burdick of Gray's Butane Ltd., Lodi, Calif., gives us the following report in connection with star thistle infestations on a large cattle ranch in the San Joaquin valley which was irrigated by three major cross ditches. The star thistle appeared first on the crowns of the ditches and developed a very heavy growth. From this nucleus the infestation spread into the pastures and was making fairly rapid progress due to the fact that the seeds were being carried to new locations as the spines on the seed heads stuck in the skins of the animals' legs. The cattle would pick up the seed heads as they went to the ditches to drink.

The spines of these seed heads are very ling, hard and sharp and as a result of their penetration a great many of the animals developed sores just above their hooves which later became infected and caused a great deal of discomfort.

About the time the seeds were mature on the star thistles in 1954, Mr. Burdick gave the main infested areas a quick treatment by means of a ditchbank burning machine. The planned objective was to burn the spines off the thistle heads, but in looking into the flames it appeared that the seeds were popping like so much popcorn. The growth of the thistles during the 1955 season was very sparse, indicating that the control was considerably better than had been hoped for and that a retreatment to eliminate the stragglers would have checked the inroads of these weeds very effectively.

Star thistles are a major pasture and range pest throughout central California and there are a great many locations where large flaming equipment could be used very advantageously to the farmer and the LPG dealer. It has even been noted that the cattle will feed on the plants after a quick burn has removed the thorns and popped the seeds.

There are a great many so-called permanent pastures in the irrigated section of the West in which Ladino clover and selected perennial grasses are the desired forage plants. These pastures are sometimes overrun by annual weeds that have no value as forage. It is generally possible to con-

trol these by using methods similar to those employed in flaming alfalfa fields. Depending on the type of weeds, this will be early in the season, when the annual weeds are still young and tender, or if they mature and go to seed, the following year's growth may be largely controlled by using a penetrating, high-velocity flame that kills the new seeds at the same time that the old growth is burned out.

In case of heavy infestation with the coarse thistles or similar growth it may be necessary to remove the pest by the combination of flaming and weed-oil sprays as discussed in a previous section of this article, after which it may be necessary to reseed the treated spots to the forage plants desired in the pasture.

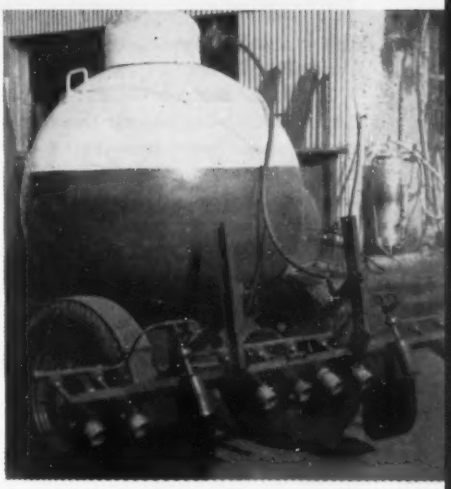
Stubble and trash removal

Most field crops grown for seed such as various grains, flax, etc. contain a certain amount of weed growth that has matured seed by harvest time. The harvesting equipment is designed to reject as many of these weed seeds as possible and return them to the ground along with the trash that goes through the harvester.

There are also certain weeds that grow up through the stubble and mature their seeds after the regular crop has been harvested. It is desirable to eliminate both these types of weeds particularly if the rotation planned for the field includes row crops in the succeeding year. Likewise a great many fields of corn and cotton end the season with a heavy weed growth in the rows and these seeds should also be eliminated as a means of preventing weed growth the following year.

The amount of heat required to kill the seeds depends on their structure and particularly on whether or not the seed is protected by a thick horn-like coat. The chemical contents of the seed are also a factor. For example, seeds containing large percentages of starch or vegetable oils develop internal pressure from heat and those containing starch may be caused to pop like popcorn, while the oily seeds may develop vapor pressure sufficient to rupture the coating and expose the germ to the action of the elements.

For most field weed seeds a temperature ranging from 180° to 200°



Small strawberry burner covers a single bed to burn out weeds and mites. (Ransome Co.) (Right) Two-row strawberry burner has tool bar adjustable for height and direction. (Petrolane Gas Service.)

inside the seed is generally sufficient to kill the germ. There are a few highly resistant seeds such as puncture vines in which a considerably higher temperature is probably required.

On account of the amount of trash in these fields, it is necessary to use a high-velocity flame and it is desirable to have the burning machine travel rather slowly so that the flame will not only penetrate to the surface of the ground but will also have time to do a thorough job of cooking the life out of the seeds.

Most effective results are obtained by setting the burners at an angle so the velocity of the flame will stir up the trash and penetrate underneath it. An alfalfa-type flaming machine may be used for this work, but satisfactory results are obtainable by mounting a number of flame thrower-type burners on a boom dragged behind a tractor with the burner units spaced closely enough together to get thorough coverage of all the ground. Such an improvised burner 10 ft wide will consume approximately 20 to 25 gal. per acre.

The cost of the fuel and the labor required for the job is small in comparison to the cost of the labor or crops that would otherwise be lost in the following year, if these weed seeds were allowed to sprout and grow in the fields.

Strawberries

Flaming of strawberries was first practiced for the control of the strawberry or cyclamen mite which had not been satisfactorily controlled by chemical treatment or other means because of its habit of hiding in the leaf sheaths of the strawberry plants.

The first control method developed was to flame the strawberry beds early in the season just prior to the beginning of the growth of the strawberry plant. In addition to killing the mites, this also eliminated the early weeds and reduced the amount of hand weeding that was necessary to get a clean culture in the strawberry rows. This method of control is now widely practiced throughout

These weeds in Colorado farmer's ditch made irrigation almost impossible. The burning machine (right) cleaned them out at 2 mph. (Agriquip).

the strawberry producing areas of the Pacific Coast.

Fred Burdick of Gray's Butane Ltd., Lodi, Calif., reports that some of the strawberry growers in that area are now employing a second flaming of the field early in September after the main crop of strawberries has been picked. The procedure that has been developed in that locality is to cut the tops off the plants with a rotary mower, allowing them to lie out on the ground from two to four days following which the flaming machine is passed over the field. By this time the leaves are rather dry and aid in the burning operation. Since the surface of the ground at this time of year is dry and warm, only very light flaming is permissible so that the crowns of the plants will not be damaged. The flaming is followed by irrigation and within three or four weeks the fields show a very dense growth of foliage and begin to bloom. An additional late crop is thus produced at a time of year when premium price can be obtained for the berries. It is not yet known what effect this practice will have on the future productivity of the plants but the vigorous nature of the growth following flaming indicates that the plants have not been harmed. Results obtained by users of the early season burning methods continue to indicate that the useful life of the plant can be prolonged for at least one additional year by flaming for the control of the strawberry mite.

Area weed control

Uncontrolled weed growth along driveways, fence rows, turn rows and odd corners adjacent to fields form a nucleus from which weed and insect infestations may spread into fields. A good many farmers prefer to keep these areas free from weeds as a means of reducing their expense of weed controls in crop areas in subsequent seasons. In a great many cases the quickest, easiest and least expensive method of removing weeds from these key areas is by burning with a hand torch or a burning machine if it can be taken over the area.

There is almost no limit to the number of other profitable uses that can be made of agricultural burning equipment in activities that are not strictly agricultural. The removal of widespread infestations of annual weeds from the fairways of golf courses is a profitable application for the field flaming type of equipment, and hand burners may be effectively used for burning out small spot infestations.

Keeping the weeds under control in cemeteries is an expensive and never ending job which can be done much more effectively with flame than with hand or power tools.

In many cities and towns the clearing of weeds out of parkways and vacant lots can be handled much more effectively and at great savings by the use of burners.

There are numerous airports, industrial yards and places where machinery, pipes and other non-flammable equipment is stored, in which the propane burner offers the best possible means of keeping weed growth under control.

There are thousands of farm ponds scattered around the country whose owners desire to keep the growth around the margins of the pond in sod instead of allowing it to grow up to weeds and brush. It is not often possible to use tools for weed removal around the edges of a pond, even if it would be as effective and inexpensive as burning out the offending growth with a propane torch.

More about bugs

The advantages of flaming for the control of insects in alfalfa, strawberries and onions has already been mentioned. In those cases these are among the primary objectives of the flaming operation.

A similar benefit is obtained in the cultivation of cotton. In fact a very appreciable measure of control against the boll weevil and other insects which puncture or chew the leaves and stalks is obtained by putting projecting angle bars on the cotton flaming equipment in such positions that they will strike against the stalks and shake the plants thus causing many of the insects on the leaves to drop to the ground in the path of the flame.

Millions of grasshoppers, crickets, weevils and other destructive insects are killed in the field flaming operations covered under the subject of "stubble fields and trash burning." While the destruction of these pests is frequently not the main objective of the burning, it does constitute a very important byproduct of the weed control.

Ditchbank burning

The most rapidly developing aspect of agricultural flaming is ditchbank burning in the irrigated sections of the West and Southwest. Keeping the canals and ditches free from weed growth is vital to the conservation of water and to the battle against the spread of weeds into the fields. With the spread of irrigation to supplement normal rainfall in other areas,

the need for weed control in those ditches also develops.

If weeds are allowed to grow unchecked, they soon encroach into the water, slowing down the rate of flow and increasing the losses by evaporation and seepage, so much of the water never reaches the fields. This has been of tremendous importance during the past few years, because nearly all of the areas that depend on irrigation for crop production have been suffering from drouth. This loss of water sometimes results in loss of crops.

The slower rate of flow in weed-clogged ditches also causes the deposition of silt, which further reduces the capacity of the ditches and eventually requires dredging. This is done with machinery, and it always results in destruction of the silt seal which has formed in the original ditch surfaces, and which is necessary for the prevention of excessive seepage. Hand labor is also used to clear away the weed growth on the banks. This method of clearing ditches and canals is very expensive. In addition, it permits a good deal of erosion before the new banks can become properly protected by a new growth of sod, and large amounts of trash are left where they can be washed into the water to choke the wiers and gates.

Chemical control of ditch vegetation is also quite expensive, and from several standpoints is highly undesirable. Much of the growth is various types of grasses, which must be treated very heavily to be killed by chemicals. This cannot be done without contaminating the water to the extent that crop damage results. Chemical control also leaves the dead weeds along the banks, where they can get into the water and clog the wiers and gates, which requires extra work to keep the water flowing and to prevent damage to the ditches from overflowing.

Control by burning is the most satisfactory solution yet presented for these problems. It is not only far less expensive than other methods, it also eliminates many of their disadvantages. A properly planned control program using propane-fired burning equipment consumes the rubbish without damaging the sod or opening the ditch surfaces and banks to erosion or excess seepage. It has been noted in many places that the conservation of water made possible by a burning program more than offsets the cost of the burning.

Where ditchbank weed control by burning has been practiced over a period of three or more years there has been a noticeable reduction each succeeding year in the number of weeds growing in the fields served by those ditches. How important weed seeds coming from canals can be to the farmer is demonstrated by a test conducted in Colorado. One-half of the test field was flooded with water from a weed-infested ditch. The other half was similarly flooded, but the weed seeds were caught by a fine mesh strainer as the water was let into the field. A careful study of the weed growth was later made, and it was found that 85% of the weeds were in the half that had received no protection against water-borne seeds. While this study was not made in connection with a burned ditch, it does lead to the conclusion that a burning program which prevents weeds along the ditchbank from maturing and producing seeds will have a beneficial effect in preventing the infestation of fields by water-borne seeds.

The most valuable conclusion that can be reached following the experience of the past several years is that no adequate control of ditchbank growth can be accomplished on a spasmodic or once-in-a-while basis. A definite program should be set up, aimed at the dual purpose of keeping the watercourse clear of obstructions and the banks and crowns free from seed-bearing weeds, and keeping the banks in condition to resist erosion. The program should be set up with full consideration for the seasonal sequence of weed growth, and the nature of the particular weeds grow-

Tule control. Unused portion, left, no burning. Right, used portion, burned four times during season. Both photos taken Nov. 10. (Rotary-Sierra Co.)

ing along the ditch. Operators who have used such weed control programs successfully have found that during the first season the ditch must be burned several times, and that when one type of weed is removed another is likely to take its place. Less frequent burning is required in succeeding years, with the annual weeds gradually becoming less prominent, and certain perennial types tending to take their place, but still requiring repeated burning to prevent extensive growth. This long-term program is necessary from the standpoint of the operators of the ditches, and is very valuable to the LPG dealers who supply the fuel, as it provides a steady market over a long period.

The ideal time to start a control program based on burning is when the ditch is new, or immediately following a mechanical clean-out. The first objective is to establish a good sod over the exposed banks and crown to hold the soil against erosion and keep the bank material from moving down into the ditch. The tops of this growth are then given a killing burn before seeds have had a chance to mature. If this first growth has been heavy the operator may go through again and burn it off so it will not fall down into the ditch. If no masses of dead vegetation remain following the killing burn, the dry material is generally left to provide soil cover. In this case it is still on the ground when the next new crop of weeds is ready to burn. It adds to the fire, and reduces the amount of fuel required to kill the new weeds.

Several types of weeds and water growth are generally found along and in the canals and ditches. Those that carry water only intermittently are the easiest to handle, as the weeds in these are generally of the dry land type, which are rather easy to kill. The ditches and canals that carry water all or most of the time are harder to control, as their weeds, particularly along the margin of the water, are generally of types that regrow from the roots. Techniques for the control of these marginal type weeds are not too well established, and there is still a great deal that we need to know about their elimination.

Rotary Sierra Co., Sacramento, Calif., has done a great deal of experimental work in developing control techniques on these more difficult weeds. Bert Presley, president of that company, has been most generous in sharing his organization's findings with the rest of the industry. Much of the information on ditch weeds that follows came from that source.

Tules (bulrushes) and cat-tails grow from perennial roots that are very difficult to kill. These roots cannot be reached by flame as they are either under water or under soil. In spite of this handicap, Mr. Presley believes that an adequately financed program extending over three years can result in almost complete kill. It must be done in cooperation with the people who control the water in the ditch, in order to be able to make the burning operations most effective. His recommended program starts early in the spring, when the dead stalks from the last year's growth are burned off the ground. It is desirable to dry the ditch out for a few days before burning, so all the old trash will be eliminated. This cleans out the ditch and kills back the new growth that is just starting. New growth starts immediately, and this should be burned again just before it is ready to reproduce itself by seed. If the water in the ditch can be lowered for this burn, and raised immedaitely thereafter, a good percentage of the roots will be severely damaged. It appears that there are certain conditions produced that result in drowning of these roots, since those that are severely affected quickly die and break down into slime.

Results on different tests of the above program are not uniform. Some ditches have shown as high as 60% kill, and others have gone as low as 25%. Repeating this procedure throughout the season, burning each new crop of tules just prior to maturity of its seeds, continues to eliminate a percentage of the plants. A three-year program of this type results in almost complete removal of the tules. From then on the problem is the prevention of new infestations. Where it is not possible to lower the water level at the time of burning, the results are not as quick, and the control program will no doubt take considerably longer.

Sedge (nut-grass) is another serious pest in the western irrigated areas, but it is a different problem than tules. It grows above the water line, and few of the established plants can be killed by flame, since they regrow from the center of the old stalk, or from the reproductive nuts that grow on the roots throughout the season. The plants produce seed most prolifically, and these seeds fall in the water and infest the fields. The only effective control developed so far is to burn the tops often enough to prevent the maturing of seed. Sedge is a particularly bad pest in uncultivated, irrigated crops such as alfalfa and irrigated permanent pastures, where it is almost impossible to eradicate it after it has gotten a good start.

Even blackberries can be controlled with propane flame. First burn kills tops, next burn removes debris.

Watergrass is a widely distributed ditchbank pest, which grows extensively in irrigated fields, on golf courses, and in other locations where sufficient soil moisture is maintained. It is an annual with a long growing and seeding season. It grows in dense tufts which are difficult to penetrate with flame, but may be controlled satisfactorily by very severe burning. Apparently it does not require the repeated burnings that are necessary for the control of tules or sedge, although it is believed to be more difficult to control than most other annual weeds and grasses.

Other ditchbank growths that pose particular problems are the perennial broad-leaved weeds such as swamp knotgrass and grasses with jointed roots, such as bermuda and Johnson grass. These may be burned repeatedly with little apparent suffering. Preliminary tests indicate that there may be advantages to following the first burning of these weeds with a weed-oil spray while the tops are still wilting. There is also a possibility that the use of chemical weed sprays on the tender regrowth sprouts may be quite effective. Such use of weed sprays must be done very carefully, taking precautions to prevent it from contaminating the water in the ditch. In the meantime, it is possible through frequent burnings to prevent these pests from producing seeds that might float into the fields on the irrigating water.

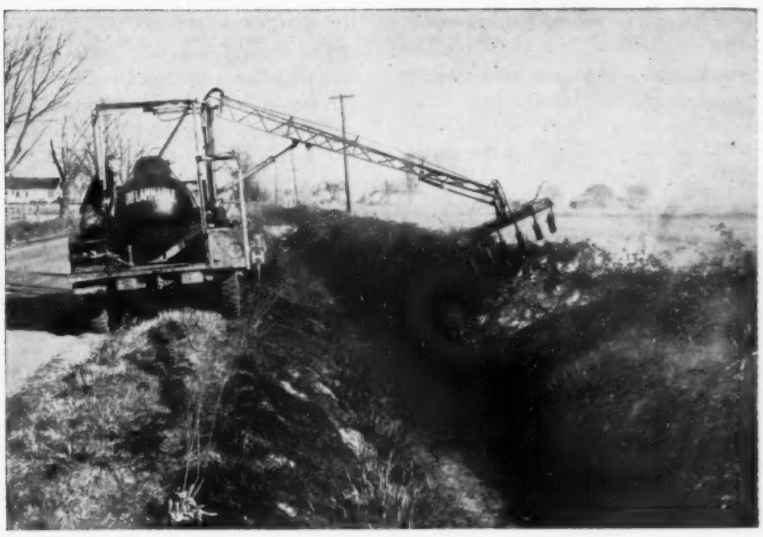
There are several types of water weeds that root on the bottom and send up stalks or stems that support leafy growth on top of the water. These can be readily killed with flame if the ditch can be emptied so the plant can be burned down to the root. This is most effective if it can be done just after the plants start to bloom. (This seems to be the time when most plants can be killed most readily. The root systems are then at their weakest, having sent most of their strength up to produce plant growth and reproductive systems.)

The use of flame has not been very effective in controlling the mosses and other weeds which grow under water, even though they may be completely uncovered at the time of burning.

Conclusions

The propane burner in its various modifications is one of the most valuable weapons that has yet been developed for the control of weeds. Like any other method of weed control, it is most effective when used on a long range program, and is relatively ineffective when used on a spasmodic basis. There are many situations in which flame weeding is the most effective and economical method of control known.

Great as has been our progress in weed control by means of flame, there is still more that we have yet to find out. We know almost nothing so far about the potentials of using weed oil or chemical weed killers in conjunction with a burning program. There are still many weeds that require special treatment for effective control with flame. There are still a number of important crops that we have as yet no sure-fire methods for flame weeding. In short, we have only scratched the surface in our present knowledge of the use of propane torches in agriculture. Ahead of us lies a great deal of research before weed control by flame can reach the peak of its usefulness. Neither the manufacturers of the flaming equipment nor the L. P. gas dealers can carry the full load of this research.

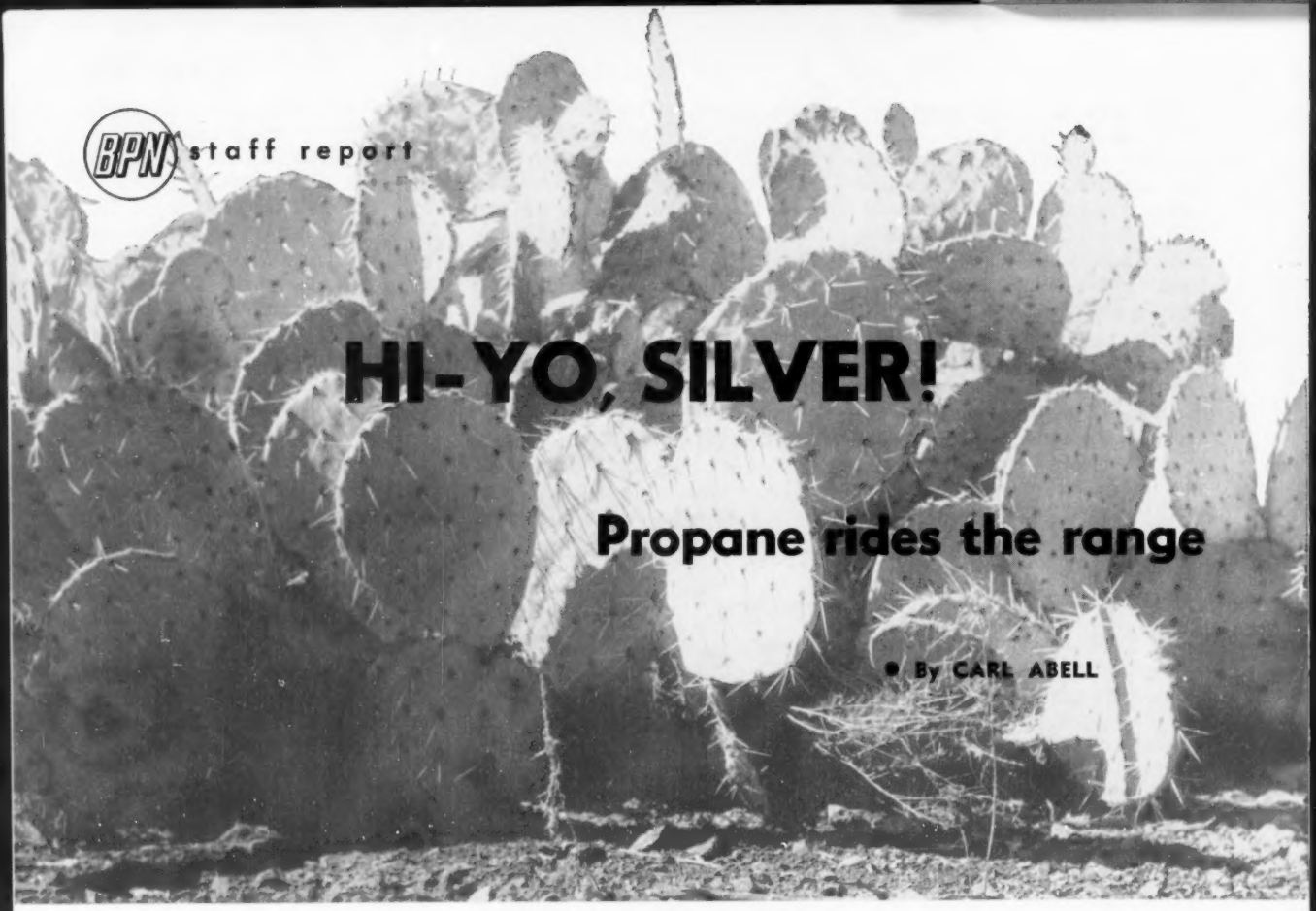


The United States Department of Agriculture and the various state agricultural experiment stations carry on such experimental programs as part of their regular business. They have already done a great deal of work in connection with flame weeding of cotton. They will do similar work on other weed control research, either as the inspiration touches them or as the need is laid before them by responsible elements of agriculture or other segments of our economy.

These people know a great deal more about chemical weed control and mechanical methods than they do about flame weeding. And what they find out goes out to the farmers through the established channels that they have set up for transmitting information to the agricultural population. Our industry could ride the same bandwagon if the research results were available. And the government regards weed control as so important that federal funds are available to partially reimburse the farmers for the cost of weed control chemicals. It is not too much to hope that a similar subsidy might be extended in connection with the use of propane on weed control projects that come under the same "public service" qualifications. Such reimbursement projects must be approved by the responsible authorities, and the road to approval lies through the research facilities of the experiment stations—and the expressed desire of a reasonably large group of farmers.

This is a job that requires organization, direction and follow-through. We can think of no greater service to the industry than for the recently announced Load Balancing Division of the Marketers Section of the LPGA to adopt this project as one of its first responsibilities. ■

BPN staff report



HI-YO, SILVER!

Propane rides the range

• By CARL ABELL

FOR half a century the winds of the southwestern Texas rangelands had wrestled with the tall native grasses while the longhorn herds thrived and multiplied and the cowboy became the symbol of the great American frontier. Then came the big drouth. Under cloudless skies and glaring sunlight the starving cattle sought the scant shade of the mesquites. Only the scattered clumps of prickly pear cactus contained nourishment and moisture, held securely in their thick leaves behind barriers of long brittle spines.

No longer able to withstand the torture of their long-empty stomachs, the dying cattle invaded the cactus. They still could not get at the succulent juices, but in the effort at self-preservation they scattered broken-off leaves across the range. At last the rain came again, and the leaves that had lain on the ground took root. The cactus clumps multiplied and spread out, covering the ground that had once provided space and nourishment for the rich range grass.

There was nothing that the cattlemen could do to bring the range back to its former productiveness. Prickly pear could not be killed by grubbing or plowing it out. Unless the leaves were destroyed they would strike root and make new plants. In a generation the rangeland diminished until it could support only a small fraction of the herds that once grazed on the southwestern prairies.

The spreading menace of prickly pear cactus progressively ruined the Southwestern range, and threatened the cattle business with extinction. The propane torch has turned the cactus into high grade feed, saved the dying cattle industry, and given us the first real step toward recovery of the range.

The only way to eliminate cactus was with fire, but the cost of fuel and the expense of labor to burn out the cactus were so great the range was not worth the cost of recovery. So the cactus went on spreading through the recurring periods of drouth, and fewer cattle found less to eat. Prickly pear was slowly strangling the cattle business in what had once been the nation's greatest producing area.

Then came the development of the army's flame thrower, which was used with such terrific effect during World War II and the Korean campaign. The sons of Texas cattlemen used them in combat, and brought back the knowledge of their great covering power and awful destruc-

tiveness. And another douth followed, when the range grass was used up or dried to worthless tinder by the sun's hot rays. Cattle needed feed, and there it was in the succulent cactus leaves, if the terrible spines could only be eliminated so the animals could get the nourishment without the torture of lining their mouths with thorns. With the flame thrower a man could reach out and quickly singe the spines off a large area of prickly pear, making the rich juicy food available for forage.

But the flame thrower used oil for fuel, and combustion was incomplete as the spray went through the torch. The unburned oil and soot covered the surfaces of the leaves. Cattle ate the cactus only under the drive of hunger, and the oil made them sick. They stayed alive, but growth was impossible, and the calf crop was badly depleted.

The cattlemen knew about the clean flame of propane, because most of them had put it in their homes to replace the smoke and dirt of the less satisfactory liquid fuels. Flame throwers were adapted to operate on propane, and the news went out over the range that this was the answer. In the heart of the roaring flame the cactus spines glowed and disappeared. There was no soot or unburned fuel to contaminate the leaves, and a wealth of palatable vitamins and nourishment was there for the taking. One cowboy with a torch on the end of a hose could despine enough prickly pear in a day to supply 400 hungry cattle. The animals' ribs disappeared as their hollow sides filled out with good red meat.

Only a few years back, when it could not be used for forage, cactus had almost ruined the range, and the cattle business was on the verge of disappearing from the great area that had once been its stronghold. Today, by controlled burning with the propane torch, the once despised prickly pear is being cleared from the range land by the simple process of having the cattle eat it into the ground. As the cactus is removed, the open ground can be reseeded with desirable range grasses, and the herds can again graze over the prairies. But in the life of this generation there will never be another time when a series of dry years will use up all of the reserve of forage that can be made available at the spurt of a flame. There are just too many million acres of cactus that are still to be burned.

The cactus that once ruined the range is now a guarantee of future prosperity for the cattlemen, and as it is eaten off the range comes back. In preparing the cactus for cattle feed, the L. P. gas industry in the great southwestern cattle area has developed a new market for tremendous proportions, which builds up in volume as the influence of drouth causes a decline in other uses. ■

CASE HISTORY OF A HERD THAT PROPANE SAVED

This is the story of the "comeback" of the great 47,000-acre Va Lee ranch, near Edinburg, Texas, one of the hundreds of once-rich cattle ranges that had become overrun with cactus. Located on the second level of the lower Rio Grande Valley, its rich acres had formerly grazed thousands of cattle. During recent years the inroads of prickly pear had reduced its carrying capacity to a thousand head in normal years, but the herd had dropped to 750 undernourished beasts during the recent drouth seasons.

During the summer of 1955 the range grass was practically eaten into the ground. The cattle had to be fed or moved to another location. To keep the herd going on hay would have required 16 tons per day, with a haul of 42 miles. It would have taken two trucks, and two men hauling the hay and opening bales, with a total cost of more than $400 per day. The same two men using the propane burners singe enough cactus to feed the herd. The fuel costs only $8 per day, delivered, and there is enough cactus on the property to maintain a herd of this size for 60 years. In the meantime the animals clear the land at the rate of two acres per day.

Only a few dry wisps of grass remain in the cactus clumps of the Va Lee ranch. There are nearly grown cattle on the ranch that have never seen rain. On the richer spots of range the cactus has a tremendous crop of juicy fruit.

In thousands of acres of pasture there is not a cow in sight. They are bedded down under the mesquite bushes, getting what comfort they can from the sparse shade—and waiting for the roar of the cactus burners that sound the call to dinner.

The jeep arrives with its fuel supply tank and the two 100-ft hoses and burners. The men stretch the hoses out full length so they can work back toward the jeep and not expose the hoses to the trampling of the feeding herd. There is still not a cow in sight.

The burner is lighted with a minimum flame, and the cowboy moves in on his first clump of cactus. He turns the valve, and the long flame streaks out with a roar like a jet plane taking off the ground. The cactus spines ignite with a flash, glow a few seconds, and are gone.

The dinner bell has sounded. Off in a distant mesquite thicket the main herd comes to life. They are up and away with pounding hoofs and a long low line of drifting dust. Only a month ago they had to be found and driven to the feed.

From other directions and closer at hand come other small groups. Soon they are headed for dinner from every direction. How these great red Santa Gertrudis and Beefmaster cattle could remain so completely hidden in the low growth is a mystery.

Case history of a herd that propane saved

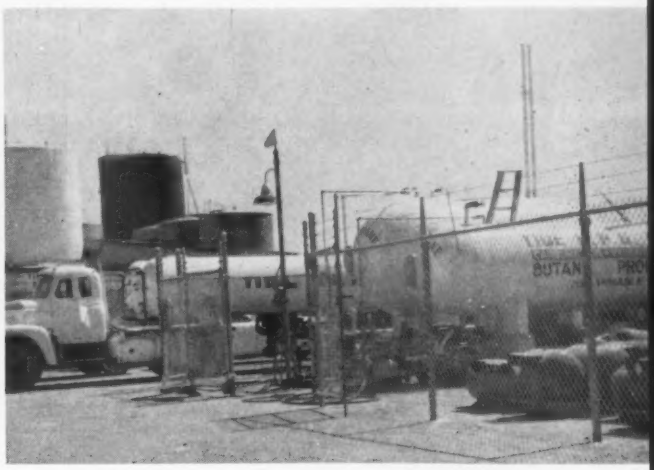
The long line of the main herd trails in from the mesquites. The roar of the burners continues, igniting and burning all the tinder-dry vegetation in the cactus clumps. Packrat nests go up in a tower of flame; the baked rats make easy living for the many coyotes.

The first of the thundering herd swing into the feeding grounds and crowd around the burners. Only a month ago these cattle were too wild to round up—now they have lost their fear of man, and the roar and the blaze from the burners hold no terror.

The cattle learn quickly to feed only on the clumps that show fresh embers or carry the odor of smoke. At first they crowd closely around the burners, and the men must work fast to keep ahead of the hungry herd of cattle.

As the burners cover additional area, the pace of the feeding slows down, and the cattle take their time about finishing their meal. The workers singe only enough clumps to feed the herd for the day, so the sap in the scorched leaves will not ferment.

The thick stalks at the base of the plants are full of juicy pulp. The cattle eat them right down to the ground to get last trickle of sugary juice. The land is cleared and ready to seed to range grasses with the coming of rain.



Propane has prevented disaster on the great Southwestern range. A hundred LPG dealers have reaped direct profits from the burning of cactus thorns. They have burned their way to still greater profits, for as the range prospers, so will all forms of business.

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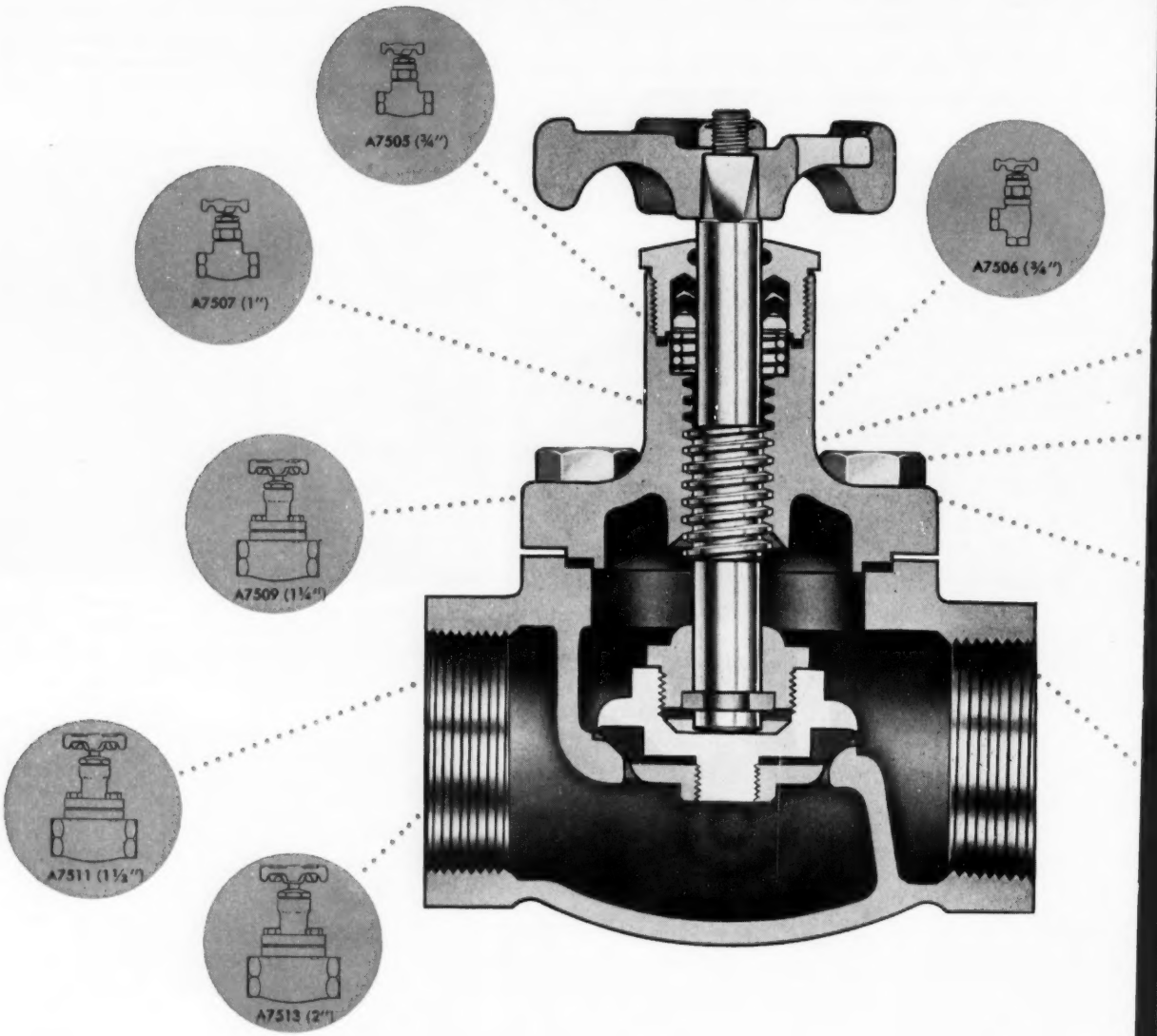

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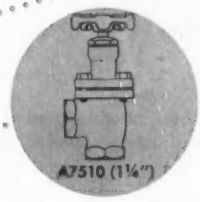

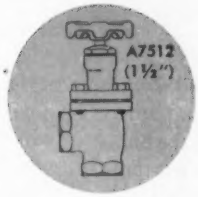

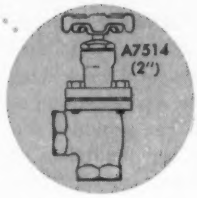

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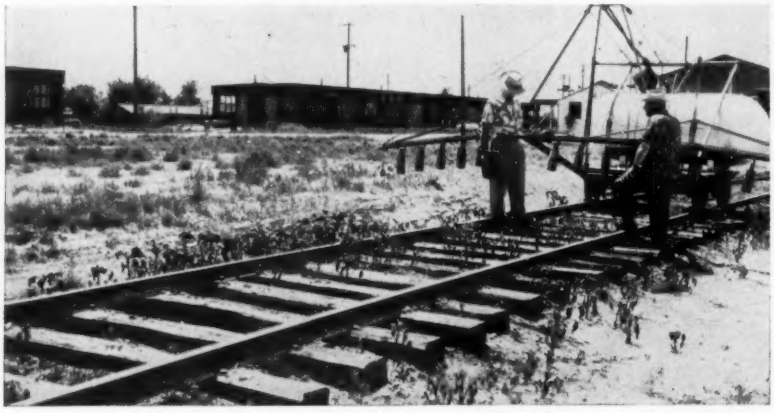
Development crew and pilot model on weed-overgrown test section of AT&SF track. Left to right, Bob Strawn, Agriquip; George Strachen, assistant to chief engineer, AT&SF; W. R. Rees, district engineer, AT&SF; Dick Pardee, Agriquip.

Propane cuts cost of weed control on railway rights-of-way



Same section of track after one flaming operation—light weed growth consumed, heavy weeds killed.

TEST work recently completed by the Atchison, Topeka & Santa Fe Railway Co. under actual operating conditions indicates that the most economical way to clear weed growth from railway rights-of-way is by means of propane burners. Their cost figures derived as the result of 10 years study of various means of killing weeds on their rail lines are as follows:

Chemicals	$76 per mile
Weed spray oils	$54 per mile
Propane weed burner	$20 per mile

These figures include the cost of fuel or chemicals, labor, maintenance and depreciation of equipment, insurance liability in relation to adjoining properties, and all other chargeable costs. The propane burns clean, leaving no residues to pollute surface water lower on the drainage area, and there is no possibility of damage to crops in adjacent fields through drifting of chemical sprays in windy weather.

Propane consumption on the Santa Fe tests averaged 43 gal. per mile. Some estimate of the potential market for LPG in clearing weeds from railways may be arrived at by considering that there are almost a quarter of a million miles of trackage in the United States, much of which needs to have the weeds removed from one to three times per year. Over much of this mileage it appears that the most economical way for the railroads to secure their weed control fuel will be from local LPG dealers.

The Santa Fe tests were conducted in collaboration with Agricultural Equipment Co., La Junta, Colo., who worked closely with engineers of the railroad in the development of car-mounted equipment to meet the specific conditions and problems of right-of-way weed burning. In this development work Agriquip's previous experience in designing equipment for ditchbank clearing was invaluable, since it provided effective burners heads and the basic knowledge of weed control that was needed.

Based on experimental work with preliminary models, a production design was evolved that provides the needed simplicity and flexibility of control for satisfactory operation by one man stationed on a platform on the car which carries the fuel supply and burner equipment. The burner bar carries 10 standard No. 20 Agriquip burner heads, and is hung on a boom which raises and lowers to secure the correct elevation for burning the various types of growth. The center section of the bar is mounted level, and carries four burners that clear the areas between and immedi-

...backward method

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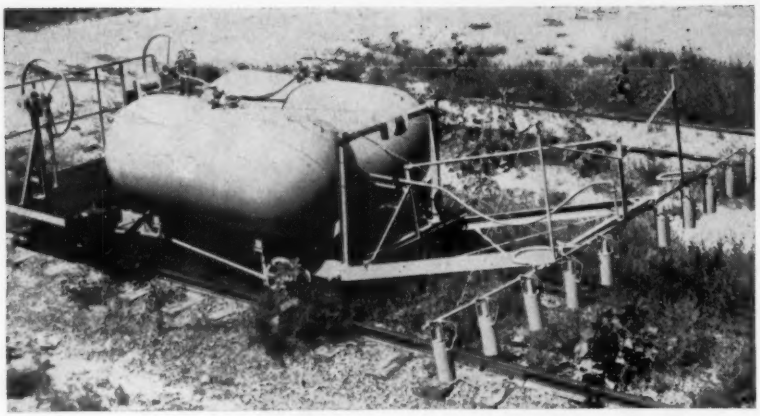
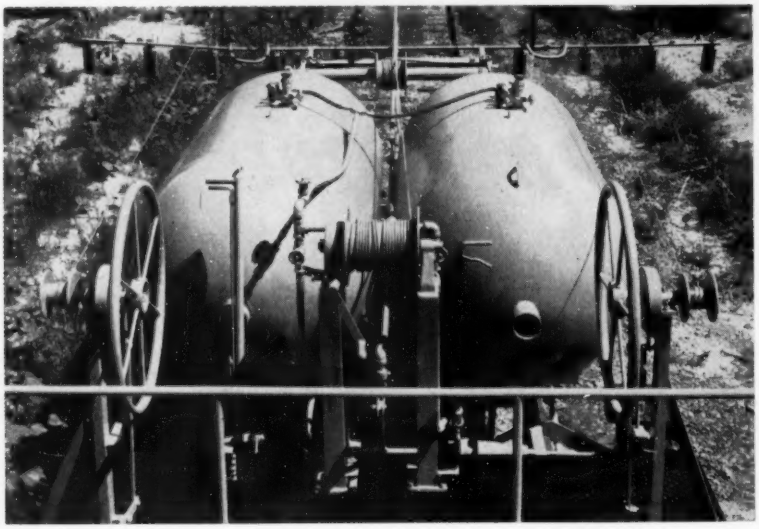


Ten flame-thrower type burners mounted on framework that is adjustable to conform to embankment contour give fast, economical control of weed growth on railway right-of-way.



Simple controls grouped on platform enable one operator to regulate height and inclination of burner bars, and control the entire flaming operation.

ately outside the rails. Extensions carrying three burners each are hinged to both ends of the center bar, covering a total swath of 16 ft. These extensions are controlled by individual elevators so they may be raised or lowered to whatever position is desired to fit the slope of the embankment. They may also be swung to the vertical position to reduce the horizontal dimension from 9 ft 9 in. when not in operation, or when traversing tunnels are passing trains.

An 8-hp air cooled Wisconsin engine operating a Corken differential pump supplies liquid fuel to the self-vaporizing burners at constant pressure, eliminating the need for a separate vaporizer. Each burner is provided with an individual igniter. The five burners on either side may be operated separately, burning an 8-ft swath, or when both sides are in operation the burning width extends 8 ft on each side of the center of the track. The complete unit, known as the Model WR-200, has been approved by the National Board of Fire Underwriters and by the Interstate Commerce Commission, pending similar approval by the Santa Fe Fire Rules Committee. (This approval has now been issued.)

The entire car weighs only 7000 lb, including the two 500-gal. propane tanks and all burning equipment and related units. Overall length is 21 ft 9 in. Operating speed when burning is from four to eight miles per hour. It can be towed by any rail motor car of from 12 to 25 hp. The man who drives this car is the only other employee required for the burning operation. Any intelligent track maintenance man can be quickly trained to operate the burning machine.

In addition to keeping the weed situation under control, the AT&SF is realizing secondary benefits as the result of its weed burning operation. Mechanical clearance of weeds has always resulted in breaking the compacted soil surface on the banks, which in turn accelerates erosion and requires extensive labor to maintain the banks and prevent undermining of tracks. The burning operation removes the growth without affecting the compacted surface of the sod, both of which help to prevent erosion and thereby hold down track maintenance costs.

A completely unexpected benefit has arisen from the fact that the high flame temperature (above 3000° F) tends to draw the creosote in the ties to the surface, thus providing protection from weathering and surface deterioration. The ties with adequate creosote do not ignite from the flame, but those that have dried out and become soft are identified by charring, which shows that they are in need of replacement.

Additional uses to which the weed control machine is being put are the thawing of frozen switches in yards and terminals, and the de-icing of car retarders. The mobility of the outfit also makes it possible to clear up any iced track areas that develop beyond the range of permanent thawing installations. It is believed that these auxiliary uses are of sufficient value to offset the cost of the burning unit over a reasonable period.

Robert Strawn Jr., general manager, and Richard Pardee, production manager of Agricultural Equipment Co., William R. Rees, district engineer of the AT&SF, and C. F. Lewis, supervisor of railroad equipment, AT&SF, were largely responsible for the development of this railway weed burner, which bears the model number WR-200, and is being marketed direct to the railways. This is regarded as a major development in utilization equipment, and should eventually add an important new summer load throughout most of the United States and Canada. ■

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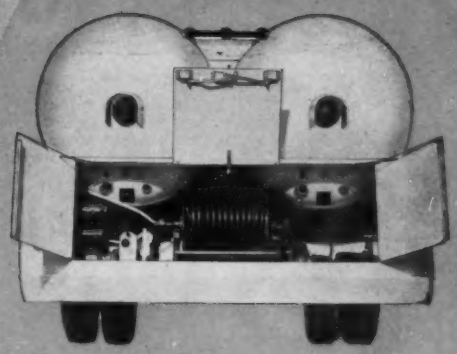

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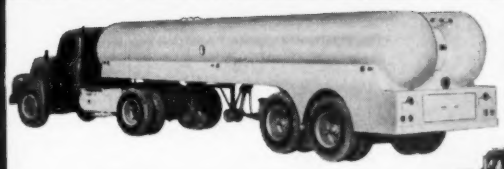
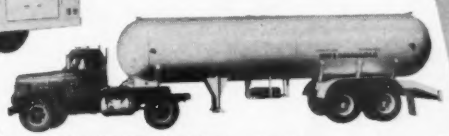


No. 200 LPG and anhydrous ammonia twin barrel transport tanks.



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No. 210 Master Max with a step-down tank. Lowers center of gravity, increases payload and reduces wind resistance.

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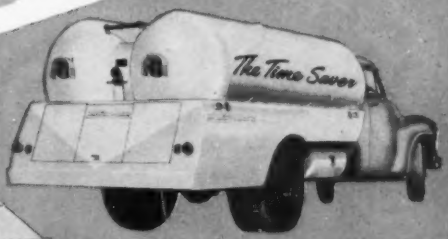
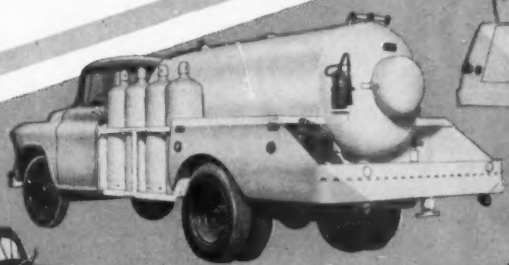


Northern Express — 1800-2200 gallons, low fittings and a closed rear end for protection against ice and snow.



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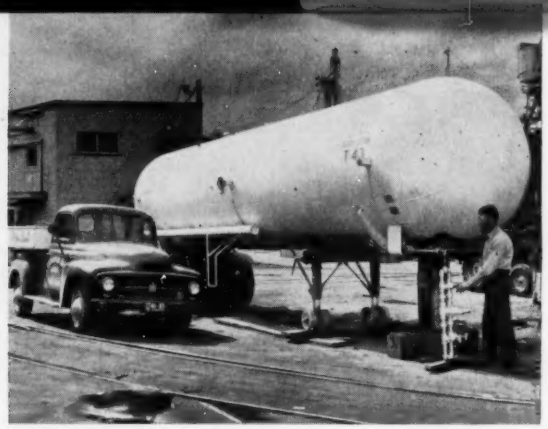
"Do-It-Yourself" Kit — For those who prefer to mount their own.

Pro-Gas preheats 86 ton valve housing at low cost...

By C. M. Ambrose



Semi-trailer transport tank provides temporary fuel supply for preheating of 86 ton welding job. Dual valves and regulators control fuel to job.

ONE of the largest welding jobs ever undertaken on the Pacific Coast was recently completed at the Todd Shipyards Co.'s Harbor island plant, Seattle, with the help of Liquefied Gas Corp. The job consisted of assembling 86 tons of steel castings, alternating with sections of 2½-in. cold formed steel, to produce the housing for a gigantic butterfly valve. This was one of four similar valves produced by Todd Shipyards for final installation at the Ross Dam project of Seattle City Light Department.

The idea of electric pre-heating was abandoned because of the time and expense that would have been involved in the construction of the necessary electric service facilities and preheating equipment. Such construction would not have been justified for these special jobs. Instead, a temporary and inexpensive preheat system was engineered and set up by Liquified Gas Corp., working in collaboration with Brown Engineering Co., Seattle, who set up the six 9-ft burner assemblies.

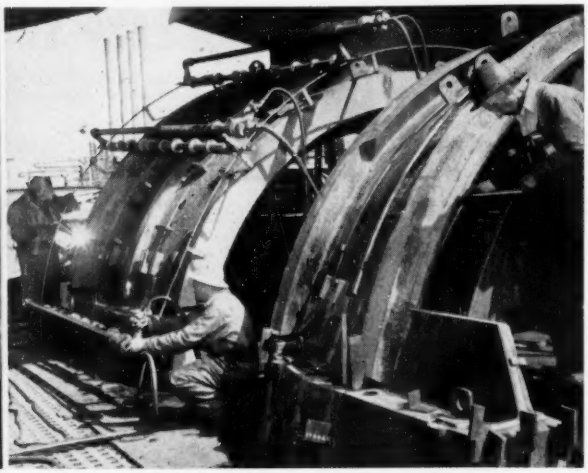
A 7500-gal. semi-trailer tank of propane was spotted in the ship yard, and left there during the job to provide temporary storage. Within four hours the Liquefied Gas installation crew had installed dual-controlled feed lines with primary regulators, and a series of six secondary regulators, each feeding a separate burner. Pressure was reduced from approximately 100 psi in the tank to 35 lb in the line and 10 lb at the burners.

The six 9-ft burners were assembled to provide heat at the desired points, using Maxon Lin-o-Flame units spaced out with pipe sections where direct heat was not needed. The valve system, manually operated, mixed propane and air from the plant compressor to provide 2 million Btu's at each burner. The total output of 12 million Btu's consumed 145 gal. of propane per hour.

In two hours of pre-heat time, the first unit of 43 tons was hot and ready for welding, and the second unit was lined up and ready. Temperature of the castings was maintained without difficulty, as was the necessary delayed cooling. After the job was completed, disassembly and removal of the equipment was quick and easy. There was no permanent investment required in connection with the job—no heavy-duty electric service, no cost for installing transformers or lines, and no switch and control panel needed. The versatility of propane enabled Todd Shipyards to save many thousands of dollars in the cost of welding up the valve housings.

Liquefied Gas Corp. cashed in on the publicity value of this job by running a half page ad in the Seattle *Post-Intelligencer* featuring Pro-Gas and the services of the company to industry. This ad was then reprinted on slick paper and used for mailing and as a salesman's exhibit. ■

Manifold distributes gas to the six burners (left) through separate regulators. Pressure at the burners was 10 psi.



Burner control was by means of manually operated valves on gas and air lines (right). First 43-ton assembly is being welded.

Your Caloric "Selling Spree" begins at HOME

Beginning in March, the fabulous NBC-TV network show "Home" will pre-sell Caloric gas ranges to millions of interested housewives

13 attention-getting wallops, delivered by Caloric on coast-to-coast TV! Millions of customers will hear and see the Caloric story in their own homes. It's the nearest thing to a personal demonstration right on your own floor. Here's an advertising campaign that offers world-beating merchandising opportunities.

Be Sure to Tie In—Use Your Own Local Advertising

This 16-cylinder advertising program will capitalize on the tremendous interest created in Caloric Ranges by "HOME" last fall. But remember, this plus business . . . a big chunk of it right in your home town . . . should be backed up by your own local advertising and display support. Your Caloric salesman is on his way with all the tie-in promotional material you need to make your Caloric "Selling Spree" a success!

More "Selling Spree" News!

"HOME" is initiating a nationwide promotion called "The House that Home Built." It's an actual house, designed as an ultra-modern showcase for all that's new in today's living. NBC is making it the center of a tremendous publicity barrage to its television audience. Naturally, in the kitchen is a Caloric Built-in gas range. It all helps to make 1956 the biggest Caloric year ever!

Your "Selling Spree" Promotion Kit Includes . . .

window-streamers, point-of-sale easels, advertising mats, radio scripts, reprints, TV films, stickers, window displays, car cards, billboards, mailers.

Caloric Appliance Corporation • Topton, Pa.

RANGES • DRYERS • BUILT-INS • DISPOSERS

Caloric Appliance Corporation
Dept. BP
Topton, Pa.

Please send me information I need to tie in with the Caloric "Selling Spree" on NBC's Network TV show, "HOME".

Name_____

Address_____

City_____ Zone_____ State_____

Maine dealer's new bulk plant planned for future bulk deliveries

By VICTOR A. SCHLICH

Elmer Ring fills a cylinder at his new bottling plant in Yarmouth, Maine.

DOWN East around Yarmouth, Maine, Elmer Ring and bottled gas are synonymous. He rates as one of the real pioneers in the development of L. P. gas in the state. For the past quarter of a century, Mr. Ring has sold gas and appliances in the Six Towns area around Yarmouth.

During the last few years he has had one driving ambition—to build his business to a point where it was large enough to warrant a bulk plant of its own. Late in 1954, Elmer and his brother, Norman, decided that the time had come.

In 25 years of hard work, much of it spent in punching doorbells in the rural and semi-industrial areas around Yarmouth, the Rings saw their annual gas load climb from nothing to close to 1 million lb. And the bulk of that load—75% of it in 1954—was being used by residential accounts.

Elmer Ring's new bulk plant, built largely with his own hands, was opened for business early in 1955. By doing most of the work himself, and using material he's been accumulating for several years for the project, he was able to build the plant for a total outlay of less than $15,000.

The 10,000-gal. storage tank is second hand, and the filling shed was developed from his previous tank storage platform. But the plant itself is modern in design and includes recently developed pumping equipment. In building it, Mr. Ring took advantage of the knowledge gained in building two bulk plants for Maine Gas & Appliances Inc., a large dealer organization serving Maine and New Hampshire.

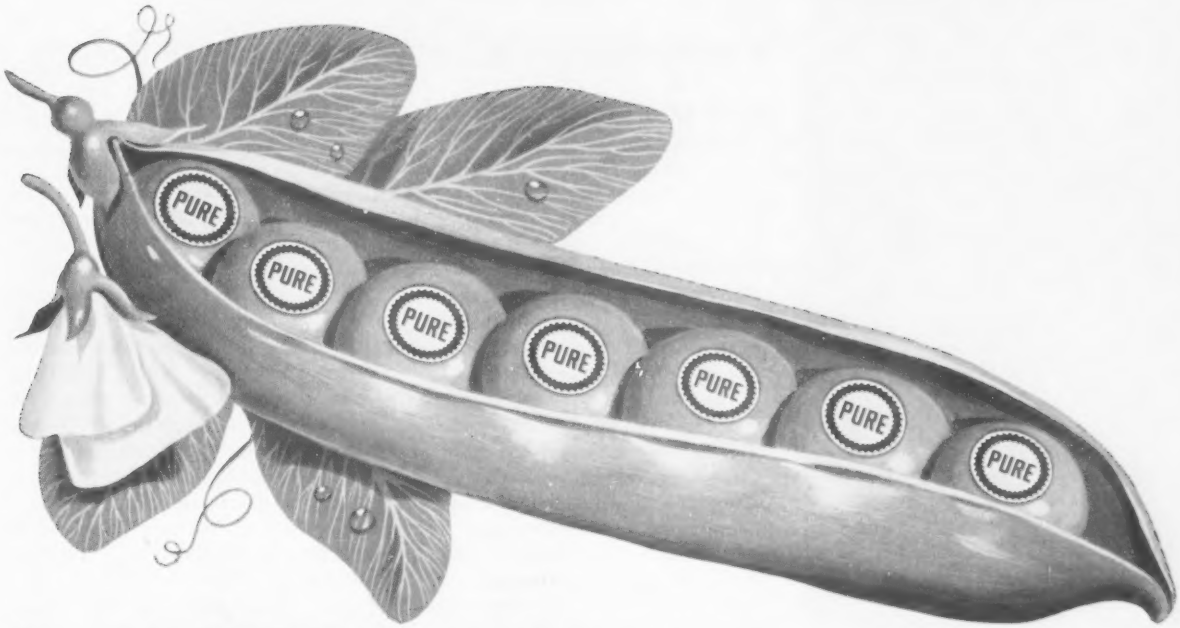
One of the first questions put to Elmer Ring about the plant was whether or not it was economically feasible for an independent dealer to construct and operate such a plant. The answer was a prompt, flat, "yes."

He explained that by building the bulk plant the Ring operation would be able to dispense with the cost of operating one truck and hiring a driver for it. The truck and driver made almost daily trips to Portland—never less frequent than every other day—to haul 30 100-lb cylinders from a bulk plant there. The trip averaged 30 miles in all. When not engaged in this chore, the driver painted cylinders.

Transportation expenses involved in this kind of a supply system, according to Mr. Ring, were such that by eliminating them the brothers expect to pay off the cost of construction in from three to five years.

Immediate, beneficial results from construction of the plant included cheaper per-pound cost of the gas handled, more convenient handling on their own premises, and, above all, an opportunity to more intensively cultivate the commercial load possibilities in their area. That was not possible before because of the prohibitive transportation costs involved in hauling gas from Portland.

Mr. Ring already has some commercial business. In addition to the traditional restaurant user, the Ring commercial load includes diversified commercial accounts.



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Be sure with Pure

PURE

Everything ready for business except the grading and paving of the yard—new spur track, unloading rack, tank, and remodeled filling house.

The *Freeport Press*, a weekly newspaper and job printing shop, uses gas to melt type metal bars prior to use in a linotype machine. Gas is also used to melt slugs back into pig form.

The Freeport Shoe Co. makes several uses of gas supplied by Ring. It is used to melt the tar that secures the arch supporters to the insoles of the shoes, and on several operations such as heating the bed-last and pull-over machines.

Several poultry processing plants use gas for singeing dressed birds as they pass along the conveyor system.

Gas-fired pilot light systems are used in several factories and commercial buildings in which the major source of heat is Bunker C oil. These pilot lights are ignited electrically by remote control, and provide a constantly burning pilot flame necessary to touch off the heavy oil, which will not ignite from the electric spark.

Ring also supplies numerous commercial and small heating installations requiring multiple cylinder installations. These range from banks of from 4 to 12 cylinders. Some of the larger installations formely included even larger multiples, but these were reduced to the present maximum of 12 because Ring figures that more frequent delivery calls are less expensive than the extra cylinder investment. Currently he is seriously considering going into bulk delivery for these larger accounts.

The Rings also serve numerous brooder installations. They installed a 50-brooder set-up at the state-operated pheasant farm at Dry Mills. They made this installation after two near-disastrous fires stemming from oil-fired brooders all but put the state out of the pheasant business.

Many years of careful thought and planning went into the new bulk plant, which was laid out according to plans provided by the Phillips Petroleum Co. The piping system is welded. Welding was chosen by the Rings after they noticed the unhappy experiences of other bulk plants when less secure types of joints began to leak.

The Rings have their store and cylinder storage alongside the Grand National Railway tracks in Yarmouth. A spur track was quickly put in when the bulk plant was built. A special unloading tower was built of available metal. Atop it is a counterweighted catwalk.

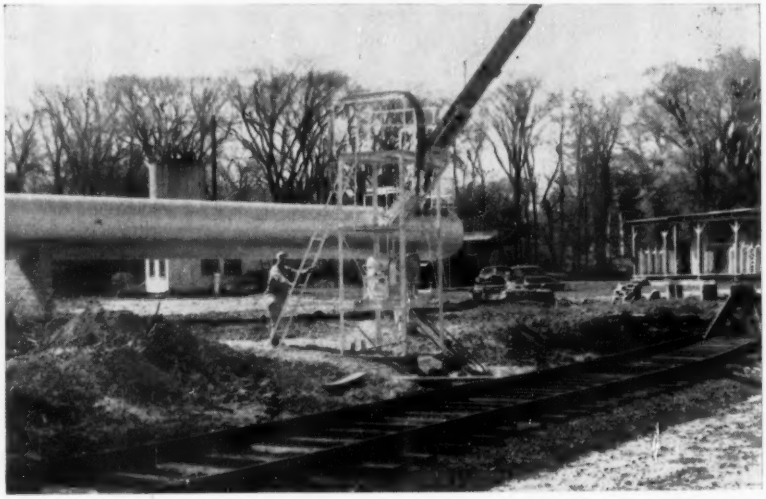
Ring brothers... Many years of careful thought and planning went into the bulk plant

The plant was laid out with future expansion in mind. There are capped spare pipe fittings at one end of the main storage tank for quick connection to a second storage tank when it's necessary. And since the Rings are purchasing a propane-operated truck for their operations, they've included connections for fueling such vehicles, even though they are rarely seen in this section of the country.

"While the fuel cost to operate such a truck in this territory is moderately high, we feel the extra cost is worth the promotional value we will get out of operating the first truck in these parts on L. P. gas," said Elmer Ring.

Ample provision has been made to protect the Rings against the effect of any such rail strike as that of several years ago which all but crippled gas distributors in northern New England. Motor transport unloading facilities are available at the Ring plant, and the brothers are keeping a constant reserve of 500 filled 100-lb cylinders on hand at all times.

Like everything else in Maine, there's little that's pretentious about the Ring plant. But it adequately fills a need they've felt for some time, but refused to build until it could be operated economically and profitably. ■



The filling house was constructed by remodeling and enlarging the former cylinder storage platform.

Here's how to beat maintenance on LPG buildings

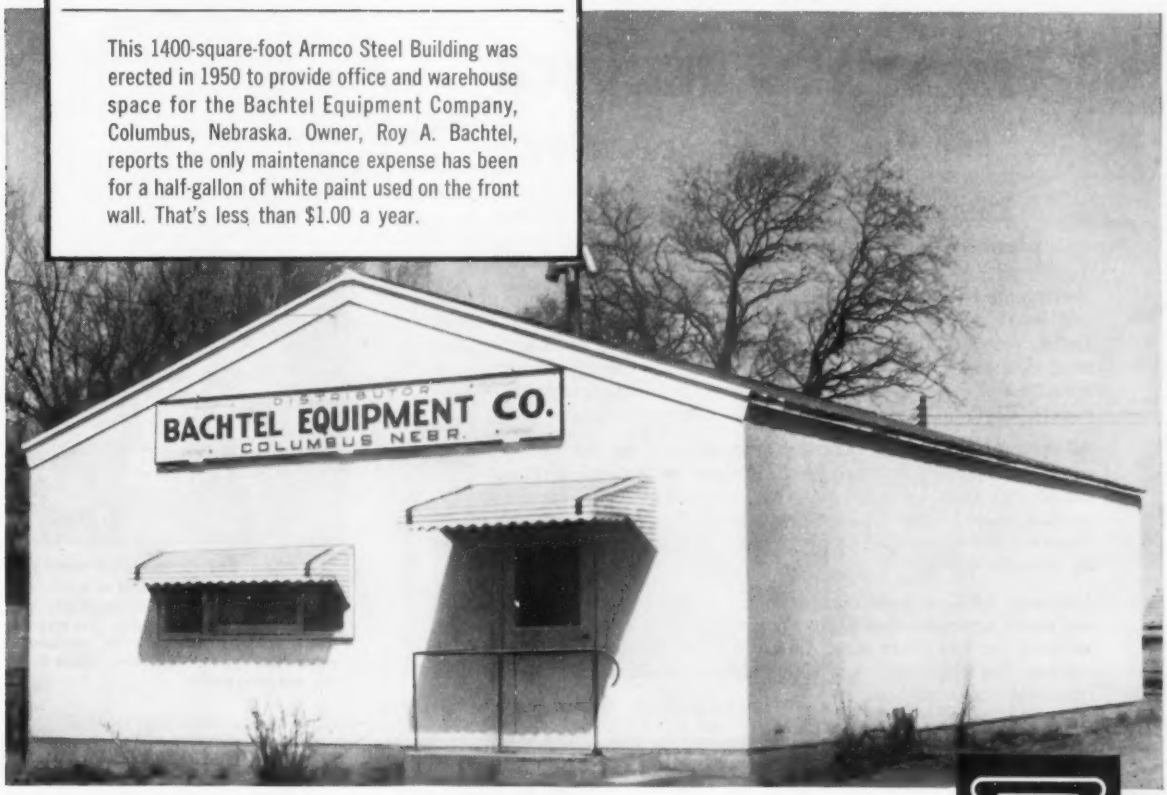
Half-gallon of paint only maintenance in 5 years on this Armco Steel Building

This 1400-square-foot Armco Steel Building was erected in 1950 to provide office and warehouse space for the Bachtel Equipment Company, Columbus, Nebraska. Owner, Roy A. Bachtel, reports the only maintenance expense has been for a half-gallon of white paint used on the front wall. That's less than $1.00 a year.

Why are Armco Buildings easier to maintain than other types? Here are some of the reasons. Wall and roof units are made of 16-inch-wide STEELOX Panels that lock together to keep out wind and water. The special joint withstands expansion, contraction, and settlement. It can't open up or pull apart.

All-steel construction means there is nothing to warp, crack, rot or burn. Individual STEELOX Panels are made of 18-, 20-, and 22-gage Armco ZINCGRIP Steel—a much heavier material than galvanized roofing and siding normally used on industrial and farm buildings. Long, low-cost service life is assured.

Write us for the complete story on Armco Steel Buildings and how they can meet all the building needs for your LPG operations. Armco Drainage & Metal Products, Inc., 4006 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.



Armco Steel Buildings

ARMCO

CITY-TYPE METERED SERVICE

for the Red River Valley

Consumers Gas Co. of Detroit Lakes, Minn. pioneered distribution of LP-Gas through mains.

Serving the highest concentration of LP-Gas customers per unit of area and density of population covered, Consumers Gas Company of Detroit Lakes, provides the ultimate in efficient service to both urban and rural customers with the aid of the watch-like precision accuracy of American® LP-Gas meters. Standard tank distribution is used for customers "beyond the mains".

All customers' tanks are supplied automatically, on the basis of meter readings, assuring uninterrupted city-type service at all times. Customers pay only for what they use, measured by the most accurate method known – the displacement meter. This same exact method of measurement is provided by progressive LP-Gas companies and utilities all over the world.

American LP-Gas Meters are manufactured with the same care that has made American Gas Meters the standard of accuracy for the Gas industry for 119 years. And American Meter Company has produced more of the 29,000,000 gas meters installed in America than all other manufacturers combined.

Consumers Gas Co. *metered service* is geared to the needs of large or small users in town or beyond the mains. *Every customer can have every modern gas convenience:* cooking, refrigeration, automatic water heating, clothes drying, house heating and incineration.

AMERICAN® METER COMPANY
INCORPORATED (ESTABLISHED 1836)

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New York • Omaha • Pittsburgh • San Francisco • Seattle • Tulsa
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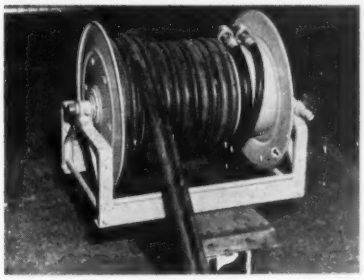
IN PRODUCTS AND TRADE LITERATURE

For further information on items reviewed in this section use the convenient post-paid Readers' Service Cards on pages 65 - 66



Dual-line hose

A new dual-line hose to improve the method of handling liquefied petroleum gas has been developed by Hewitt-Robins Inc.

Description: The new hose consists of two lines of different size joined together Siamese-twin fashion to form a single unit. It is designed for use on trucks which deliver LPG fuel to homes and industrial consumers.

Joining the two lines together by means of a rib of rubber results in a hose unit that is easier to handle, has longer life, saves wear and tear on meters and pumps caused by pressure differential, eliminates tangling and speeds up delivery of the LPG.

The new hose will be available in lengths up to 125 ft. The gas-carrying line has an inside diameter of ¾ in. and the vapor line ½ in.

Hewitt-Robins, Inc.

Circle **1** *on Readers' Service Card*

■

Self-sealing coupling

A self-sealing coupling, designed for use with Freon 12 and Freon 22, has been developed, full tested, and is now being produced for use by the refrigeration and air conditioning industry. The coupling, manufactured by Aeroquip Corp., is available in ¼-in. through 1½-in. sizes, and provides a positive, leak-proof seal, without inclusion of air upon disconnection or connection.

Model: No. 511017

Description: Condenser and evaporator units and their connecting tubing in various lengths are precharged with Freon at the factory, sealed with Aeroquip Freon coupling halves and shipped completely precharged. When the units are set in place in a purchaser's building, the lines are easily connected by mating the proper coupling halves, and the system is ready for operation.

Aeroquip Corp.

Circle **2** *on Readers' Service Card*

■

AA universal hitch applicator

Purpose: Development of an universal hitch applicator has enabled Pollard Manufacturing to mount its rear-mounted anhydrous ammonia applicator to all tractors, regardless of the age or model of the tractors.

Description: Optional on this machine are the company's depth gauge wheels for prevention of whip-sawing over uneven ground.

The applicator is available with either 8-ft or 14-ft, hinged, rugged, boxed angle tool bars; 1-in. or 1½-in. double coil spring shanks and special alloyed and hardened knives.

The company will carry this applicator in addition to its long established 3-point applicator.

Features claimed: This Pollard applicator has only two wearing surfaces, and this feature results in low upkeep and fast, power-saving operation. It is equipped with a hydraulic cylinder with depth stops for exact control at any depth penetration.

Pollard Manufacturing Co.

Circle **3** *on Readers' Service Card*

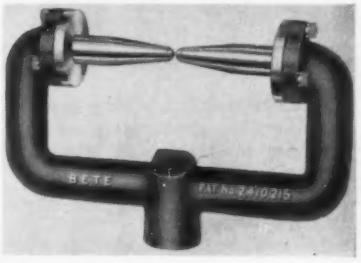
■

Jet nozzles

Model: Bete O.J. Series

This is a new line of opposed jet impingement-type nozzles introduced by Bete Fog Nozzle Inc.

Features claimed: Highest efficiency of atomization at any operating pressure is claimed, and the new nozzles are also said to provide a more uniform drop size. A patented design



of the interior of the nozzle tips produces laminar flow at the point of impingement with a clear, laminar sheet being generated. This sheet, in turn, breaks up into extremely fine droplets of uniform size.

Construction: There are no internal parts to clog or wear, and the laminar flow through the nozzle tips reduces wear at the point to a minimum.

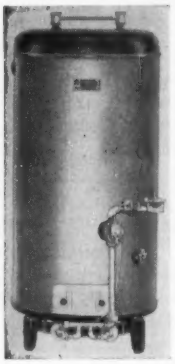
The new nozzles are available in four standard sizes ranging in flow rate from 3 to 30 gpm. Pipe connections are ⅜-in., ¾-in., 1-in., and 1½-in. Standard materials are bronze and aluminum.

Bete Fog Nozzle Inc.

Circle **4** *on Readers' Service Card*

■

Water heater



Model: Sanimaster

Purpose: A new Sanimaster automatic storage gas water heater, containing solid aluminum alloy tank of multi-tube design, and engineered to provide efficient water service in restaurants, motels, schools, churches, multi-family buildings, and industrial show rooms, is now being marketed by Ruud Manufacturing Co.

Description: Model AST72-105 operates on L. P. gases with a 72-gal. storage rating, 60-gal. nominal tank size, and a 105-gal. per hour recovery at 100° rise.

Features claimed: Ruud states that the new water heater can be used as a space-saving, free-standing, self-operating and self-controlled unit—without supplementary electric controls, circulating pumps or external tanks. Single or multiple installation is said to be economical and quick.

Ruud Manufacturing Co.

Circle **5** *on Readers' Service Card*

■

24-in. range

Orbon Stoves Inc. is now producing a new 24-in. gas range, which will be added to its line of "Good-As-Gold" stoves.

Description: The range comes equipped with Harper-Wyman aluminum head burners, Johns-Manville

rock wool blanket insulation, Universal valves, Robertshaw heat control, automatic top lighters, and AGA approval for all gases.

Other features include full porcelain finish, speckled porcelain oven with two bright finish oven racks, drop-drawer roll-out broiler rack.

The semi-deluxe model also features a glass oven door. The super-deluxe model has all of these features plus the added extras of an electric clock timer and a receptacle in the back guard.

Orbon Stoves Inc.

Circle **6** *on Readers' Service Card*

■

Air conditioner

Several new additions have been made in recent months to the American-Standard line of heating and air conditioning equipment designed for use with the L. P. gas and L. P.-air gas. These units include:

Model C-G-W, a complete-under-one-jacket, factory assembled year-round air conditioner designed for gas-fired winter heating and equipped with a water cooled 2 hp or 3 hp 100% hermetically sealed refrigerant circuit for summer cooling. Same blower provides winter and summer air distribution, and a combination heating-cooling thermostat, furnished as standard equipment, centralizes all necessary control at one point. Seasonal change - over is accomplished by manual lever or with optional motor driven damper control.

Model GCA (gas counterflow assembled), an extremely compact conterflow design for perimeter heating in basementless and slab construction houses.

Model GLA (gas low-boy assembled) is a popular-priced, all-steel basement unit, fully assembled, wired and installation tested at the factory; available in eight sizes, from 75,000 to 300,000 Btuh input.

Model GUA (gas utility assembled) is a narrow-width design, ideal for installation in closet, alcove, utility room or other location where space is limited. Smallest unit is only 13⅛ in. wide.

American Radiator & Standard Sanitary Corp.

Circle **7** *on Readers' Service Card*

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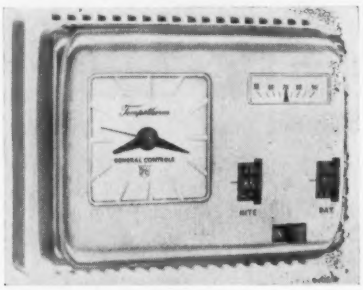

Clock thermostat

Model: Tempotherm

Purpose: Automatically raising and lowering room temperature, the new General Controls clock thermostat is designed to assure comfortable sleeping conditions throughout the night and a warm house in the early morning.

Construction: The new thermostat is sheathed in a thin silhouette case of satin-finished stainless steel to provide a durable, modern exterior for the automatic and accurate temperature control inside.

Hermetically sealed against dust, grit, lint and moisture, the Tempotherm features mercury switch contact, and large white numerals on black roll type dials, positioned to permit easy finger-tip control without wall smear.

General Controls Co.

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BUTANE-PROPANE NEWS
198 SOUTH ALVARADO ST.
LOS ANGELES 57, CALIF.

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LPG wall steamer

Model No. 657. Gas Pilot Wall Steamer.

A comparatively new application of L. P. gas is its use for steaming machines to remove wallpaper. The market includes wallpaper houses, paint firms, hardware stores, decorating contractors and dealers who wish to carry these machines in stock for rental or sale to those requiring this kind of service.

Description: This model operates on only 14 oz. gas pressure and employs the latest pilot light safeguard. It is precision engineered for best possible performance and produces more than enough steam to remove up to 16 layers of paper on a wall.

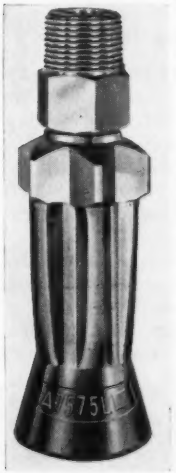
This machine stands only 27 in. high, has a 4-gal. water tank, and is furnished complete with all accessories except the bottled gas tank. It includes a 20-ft, ⅝-in. special steam hose, gas hose, gas regulator and steam pans. The shipping weight is 70 lb.

Warner Manufacturing Co.

Circle **9** *on Readers' Service Card*

■

Safety hose coupling



Model: A7575 Series.

Protection for L. P. gas operators is a special feature of the hose couplings developed by the Rego division of the Bastian-Blessing Co.

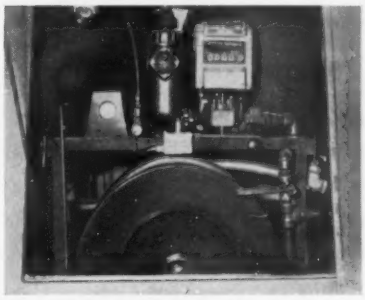
Design: Design of the coupling, it is claimed, prevents the operator from "spinning" the coupling nut off the filler valve while leaning on the hose since, when disconnecting, the coupling nut forces the nipple to withdraw. Each coupling in the series has a steel nipple and an extended cast aluminum coupling nut. The filler connection is 1¾-in. Acme, with a choice of ½-, ¾- or 1-in. NPT male hose connection.

Features claimed: It prevents frostbite to the hands of the operator caused by the unexpected discharge of gas when dirt or pebbles obstruct the seating of the filler valve check.

The Bastian-Blessing Co.

Circle **10** *on Readers' Service Card*

■



Twin-barrel bulk truck

A 1700 gal WC capacity twin-barrel L. P. gas tank truck is in production by Dowingtown Iron Works. Conforming with ICC-MC330 specifications, it may be used in any state or for interstate deliveries.

Construction: 1406-gal. payload is provided with overall height lower that top of cab. All delivery controls, eye level meter and hose reel are grouped in rear cabinet. Rear door raises to shelter operator and controls in bad weather. Door can not be closed until liquid valves are turned off. Delivery hose may be taken out small door in either side of cabinet from either manually or electrically operated reel.

Piping is designed for quick changeover to new chassis; located between tanks and truck frame for complete protection and ease of inspection and maintenance. Vaporproof electrical installation; directional signals; unbreakable lenses on all lights.

Downingtown Iron Works, Inc.

Circle **11** *on Readers' Service Card*

■

Domestic range

Model: 300 Series, 36-in.

Description: This 1956 domestic range is newly designed to supply a large, oversize, 20-in. oven; storage compartment with utensil rack and drawer; large griddle, which is removable to make an extra, fifth burner; easy-to-see knobs on a one-piece "waterfall" top; and a condiment rack on the backguard, which has an appliance outlet and the oven timer.

The oven door has a silicone rubber seal and a 2-in. blanket of fiberglass insulation around the oven to prevent heat loss and which results in a cooler kitchen.

Features claimed: A needlepoint pilot light is placed at each burner which, it is claimed, will cut gas consumption by two-thirds.

Dixie Products Inc.

Circle **12** *on Readers' Service Card*

■

LPG truck engine

The new LPG-powered International model SP-180 truck is only one of a wide range offered in the International S line.

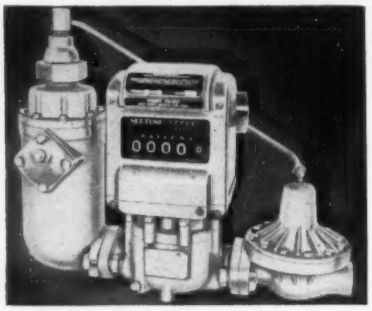
Description: International LPG engines are factory-installed, listed with Underwriters' Laboratories. Standard LPG engine in the SP-180 is the 137 hp. International Black Diamond 282. Optional is the 150-hp International BD-308 with LPG fuel system. The S-180 series ranges from 19,000 lb gross vehicle weight rating to 22,000 lb and is available in 130-, 142-, 154-, or 172-in. wheelbases. Power steering is optional.

The International S line ranges in GVW ratings from 4200 to 33,000 lbs and includes four and six-wheel conventional and specialized models.

International Harvester Co.

Circle **13** *on Readers' Service Card*

TRADE LITERATURE



Liquid meters

Model: Red Seal

Purpose: To permit faster bulk deliveries from tank trucks, and to speed loading of tank trucks at bulk plants, two larger sizes of Red Seal L. P. gas liquid meters have been introduced by Neptune Meter Co. The new 1½-in. meter handles 60 gpm, and the 2-in. meter is rated at 100 gpm.

Description: Using the same oscillating piston principle as the present 1¼-in. 30-gpm Red Seal meter, they are of the "positive displacement" type, measuring every drop that passes through them. With only one moving part in the measuring chamber, wear is reduced to a minimum, giving high sustained accuracy with low maintenance.

Each of the new Red Seal meters is a complete tank truck or bulk plant metering system in one compact unit, with all accessories included. They are listed by Underwriters' Laboratories, and meet API-ASME Positive Displacement Meter Code requirements.

Neptune Meter Co.

Circle ***14*** *on Readers' Service Card*

■

Timer valves

The flow of liquids, gas, or air can be controlled automatically with new timer valves available from the Automatic Controls Corp. The units consist of a solenoid valve and a timer control sealed in a water-tight case.

Description: These timer valves turn the flow on or off at desired time intervals. As they are available in a wide variety of timing cycles, they have many industrial applications. They can be used to turn a flow either on or off, or both on and then off, at any desired time.

The new timer valves fit all standard pipes ⅜-in. and larger, and operate on 110 or 220 volt, 60-cycle current.

Automatic Controls Corp.

Circle ***15*** *on Readers' Service Card*

Air conditioning challenge

The vast importance to the gas industry of year-round air conditioning with gas is dramatically told in a brochure recently published by Servel Inc.

What must be done now to hold the line for gas and to gain the enormous potential of the immediate future is vividly portrayed by word and graph in this booklet. Every operator of a gas distribution business—LPG distributor or utility manager—should possess this book to familiarize himself with this challenging situation.

Servel Inc.

Circle ***16*** *on Readers' Service Card*

■

Carburetion catalog

A new four-page brochure illustrating and describing Century Carburetion features all units including carburetors, converters and strainer-fuelocks has been released.

The metering valve incorporated in all Century carburetors is explained and illustrated to show its effects in providing dependable, efficient power and economy.

Century Gas Equipment Co.

Circle ***17*** *on Readers' Service Card*

■

Tractor booklet

John Deere Co. offers a 20-page consumer booklet entitled "John Deere Factory-Engineered L. P. Gas Tractors." Besides detailed information on the features of the company's complete line of LPG tractors, the booklet contains several sections of basic information helpful to the dealer in making the sale of the tractor, and to the user in making accurate comparisons between operating costs on LPG and on other fuels.

A two-page section on "Storing and Handling L. P. gas" is of particular value since it gives clearly and concisely the correct methods and the reasons why the incorrect methods should not be used. Copies of this booklet will be a valuable addition to the LPG dealer's working sales kit.

John Deere Co.

Circle ***18*** *on Readers' Service Card*

Hot water booklet

Hot water in the bath, kitchen and laundry is the heart of personal comfort and convenience in the home, a manufacturer of automatic gas water heaters says in a homeowners' booklet that has just been issued. It is titled, "The Home Without a Heart." With the expanding use of hot water in automatic dishwashers and home laundry equipment, homeowners are urged to give full consideration to their actual household requirements for constant and fully heated water supply.

Family size and home equipment that uses hot water are shown in a table that gives the required size of automatic gas water heater. Construction features of the John Wood Co. water heaters are also shown and described.

John Wood Company

Circle ***19*** *on Readers' Service Card*

■

Incinerator brochure

A four-page, self-mailer describing four sizes of the Brule incinerator is available upon request.

There are models for domestic use and others for commercial and light industrial applications, and even heavy duty garbage units.

Descriptions of all models are complete and provide the reader with exact information regarding design details and operation.

Brule Incinerator Corp.

Circle ***20*** *on Readers' Service Card*

■

Hot water heating folder

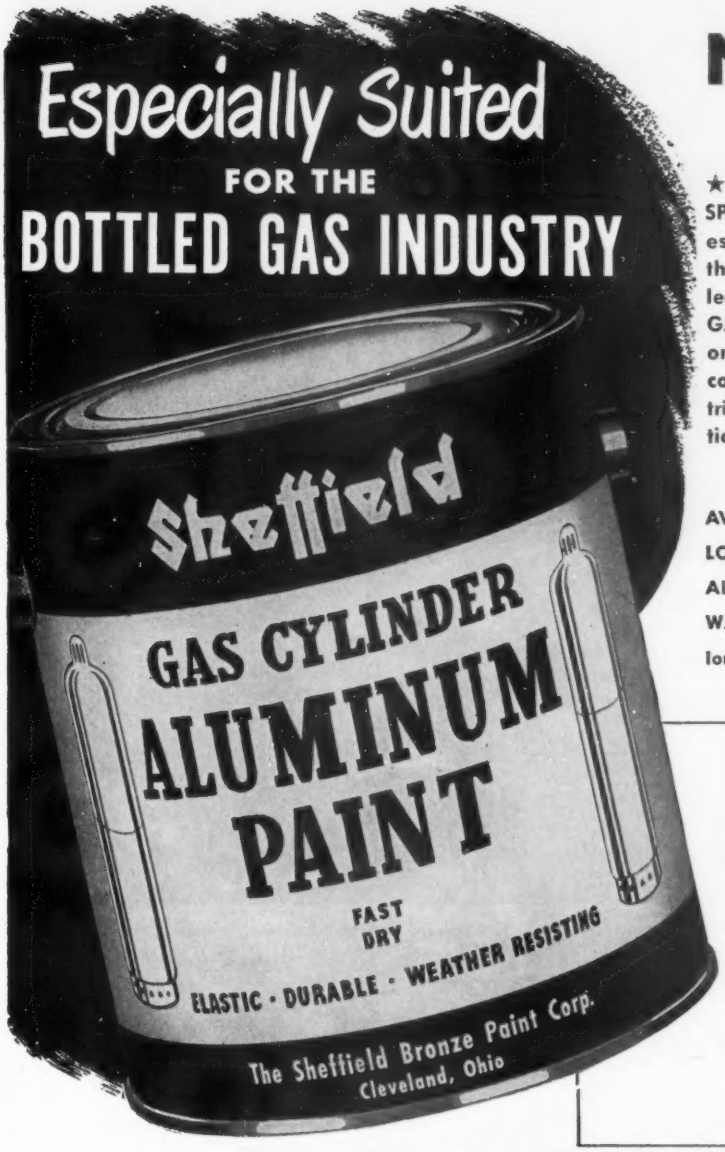
The advantages of the direct, gas-fired, storage-type, automatic water heater over the use of space heating equipment to furnish domestic hot water for multiple dwellings are set forth in Self-Mailer Form 982, which is available from Ruud Manufacturing Co.

The attractive, 4-page folder describes the new Ruud-Monel Sanimaster, which delivers two temperatures of hot water from a single tank. Diagrams and cartoons vividly portray its advantages over an indirect system using space heating boiler with exchanger.

Ruud Manufacturing Co.

Circle ***21*** *on Readers' Service Card*

Especially Suited FOR THE BOTTLED GAS INDUSTRY



NOW—at New Low Prices

★ A few years ago we introduced this SPECIAL FORMULATION of aluminum paint especially for the gas cylinder industry and the response was overwhelming. TODAY . . . leaders in the industry recognize SHEFFIELD GAS CYLINDER ALUMINUM PAINT as the one paint that takes plenty of abuse . . . and comes up bright and smiling! If you haven't tried it yet . . . send for additional information—and see for yourself!

AVAILABLE IN GALLON, 5 GALLON and 55 GALLON CONTAINERS. Remember . . . SHEFFIELD ALUMINUM GAS CYLINDER PAINT is better ALLWAYS . . . MORE ECONOMICAL . . . a little goes a long way!

- ★ Fast Drying
- ★ May Be Stencilled Within 15 Minutes
- ★ Hard Surface
- ★ Won't Rub Off
- ★ Smooth Finish
- ★ Semi-Lustre
- ★ Long Wearing
- ★ May Be Brushed or Sprayed
- ★ No Unpleasant Odor
- ★ Made With A Special Synthetic Vehicle Insoluble in Turpentine or Ordinary Petroleum Thinners

Sheffield ALUMINUM TANK PAINT

Laboratory Tested

Extensive weather-o-meter tests prove this NEW aluminum paint will resist more than one and one-half years EXPOSURE TO WEATHER EXTREMES! Formulated to do TWO specific jobs . . . to PROTECT surfaces against rust, wear and corrosion and to add a long-lasting attractive finish. Covers all primed surfaces in ONE COAT . . . economical in application . . . economical because it is long lasting!

Ideal For Bulk Gas Storage Tanks

Sheffield *Bronze* PAINT CORPORATION

ONE OF THE WORLD'S LARGEST MANUFACTURERS OF ALUMINUM PAINTS

CLEVELAND 19, OHIO

Flood waters cover Yuba City following break in the Feather river levee on Dec. 23. Marysville is across the bridge. Morrison Petroleum Co.'s oil and LPG plant is shown in inset.

Restoring service is big job in the area of the Yuba City

FLOOD

BPN exclusive

ACTIVITIES at Morrison's Petroleum Co. in Yuba City, Calif., on Dec. 23 were much the same as at many other L. P. gas dealers throughout the country — last-minute deliveries to assure customers of plenty of gas to carry them through the busy holidays ahead—a quick trip to the store to pick out last-minute gifts for the family and friends and the usual "Merry Christmas and Happy New Year" greetings to those coveted customers who were stopping by the office to pay their gas bills. In addition to the preparations for the coming holidays, the employees of this Petrolane Gas Service subsidiary showed strains of additional anxiety this particular day.

For several days, news reports had indicated that the fast rising Feather river flowing through the California town of Marysville, which borders Yuba City, was threatening to overflow the levee and flood the community. As a measure of safety, the residents of Marysville had received orders to evacuate. The majority had

Here are the features your next delivery unit should have..

AND ONLY AMERICAN GIVES THEM TO YOU

A Custom Unit at Lowest Cost

New super-safe plumbing system increases pumping capacity . . . makes delivery faster . . . saves time and money.

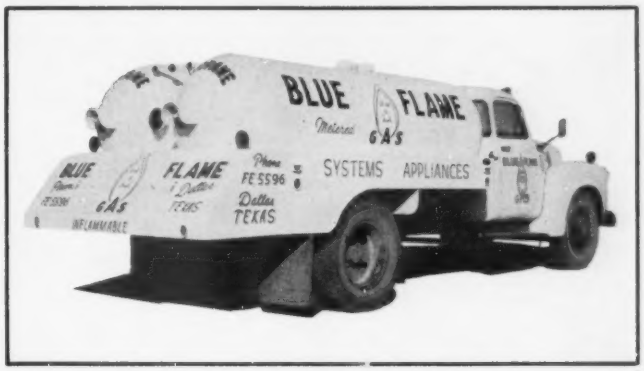
Tanks are locked to truck. Positively won't slip forward . . . a great driver-protection feature in case of accident.

Best balanced units on the road. American delivery units save wear and tear on trucks, give greater safety.

Motor fuel tank and meter mounted in rear . . . can't be side-swiped or sheared off . . . another American safety feature.

Quick changeover . . . when your long lasting American tanks are ready for a new truck, they can be changed over in just a few minutes . . . another American plus.

Good Looks . . . American delivery units are streamlined and good-looking . . . give you the extra safety you need with the smart appearance you want.



Deluxe Model N17. A completely enclosed, compact unit designed with all controls, motor fuel tank, meter, hose reel, power take-off and clutch controls in rear cabinet. Particularly desirable for dealers in northern areas . . . keeps all controls and equipment clean, fully protected from snow, ice or rain.

Deluxe Model B21. Fuel tank and fire extinguisher located in rear . . . meter and hose on catwalk next to driver. Also available with fuel tank, clutch, power take-off and hose reel in rear.

FINANCING AVAILABLE — Write for Information

HEADQUARTERS FOR THE LP GAS DEALER
1 order • 1 shipment • 1 invoice

Telephone STerling 4916

American Tank
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CALIFORNIA DEALER HARD HIT BY FLOOD

Dingville (top left), seven miles downstream from Yuba City, was still under 3 ft of water on Jan. 22.

The Red Cross rushed in, as always (lower left), to help take care of flood victims. Of the $8 million distributed in northern California, $3 million went into the Yuba City area. 150 pints of blood were supplied to the local hospitals.

Customer's home (lower right) in the outskirts of Yuba City. Note the flood debris on the roof. Water still standing four weeks after break in levee.

crossed the river to nearby Yuba City with a feeling of safety. Then it happened: the levee broke. The break did not occur in Marysville where they were anticipating trouble, but instead it gave away just south of Yuba City.

Almost without warning, the sudden rush of destructive water made its way over thousands of acres of fruit orchards and peaceful farm lands like a mad monster knocking over anything and everything that dared to be in its path. Peach and cherry trees, which a few months before had produced some of the finest fruit in America, toppled over like small blades of grass under a heavy boot. Houses and barns were picked up off their foundations and set free to create additional havoc as the fingers of this terrible monster continued to spread out in all directions. In a matter of a few hours practically every building in Yuba City began to fill up with debris-saturated flood water which seemed determined to make its way to the top of the brightly lighted Christmas trees that had been carefully decorated but a few days before.

Most of the population of Yuba City, including all of Morrison's employees, had miraculously fled to safety. Others were not so fortunate.

Approximately 20 years ago, Morrison Petroleum Co. had been formed and had been able throughout the years to build a very successful business. Service to the customers has been the "key" to this successful operation. It was natural, therefore, that Manager F. E. Andrews' first thought when returning after the flood was to take care of his customers first. "Red," as he is affectionately known to his friends, found the plant had withstood approximately 8 ft of flood water. Appliances, desks, chairs and records littered the once attractive showroom. It would take days and perhaps weeks to restore his operation to some semblance of order. There wasn't time for this now.

As the flood waters receded and the people began to make their way back to their flood-damaged homes, it was necessary to restore gas service as soon as possible. Cook stoves were needed to boil the drinking water which had temporarily been condemned for this use. Heat had to be made available to restore some degree of comfort to these suffering customers. Hot water was urgently needed for the clean-up job ahead. All available employees, regardless of their specialized jobs, were converted to servicemen. Additional servicemen were flown in from the Petrolane branches at Long Beach, Oxnard, and Bakersfield. Mobile equipment, including a crane truck, was brought in from some of the company's other branches in the Central valley.

Then the tedious task of restoring LPG service to the homes began. An urgent plea was made for 100-lb cylinders that could be used to replace the hundreds of tanks that had floated away. These cylinders began arriving from as far away as Nevada. Hundreds of spare controls were required to recommission customers' cooking, water heating, and house-heating equipment. These were supplied from company branches and from manufacturers' warehouse stock. Competitors, who days before had been trying to outdo one another, came to the rescue of Morrison's. Within a matter of hours, a great number of customers' appliances were back in service.

It would seem that by Jan. 22, just short of a month after the break in the levee (and when most of these pictures in this story were taken), most of the water should have drained away. This is a long way from being a fact.

Ordeal by Fire

Normal fabricating methods create internal stresses that can shorten cylinder life. So most manufacturers heat-treat to "stress relieve" or *reduce* these stresses.

LINDE "normalizes," as shown here, to *remove* harmful stresses *completely* and so increase cylinder life. "Normalizing" is only one of many plus values based on LINDE's 50-odd years' experience in making and using compressed gas cylinders. You can pay more, of course, but you can't buy better than the PREST-O-LITE brand.

See your local LINDE representative, or write today for full information. LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Linde Air Products Company, Division of Union Carbide Canada Limited, Toronto.

The terms "Linde" and "Prest-O-Lite" are registered trade-marks of Union Carbide and Carbon Corporation.

This boat was used for several weeks to travel over flooded fields, finding and identifying customers' tanks and helping flood victims to reach their homes.

In the Dingville area, approximately seven miles south of Yuba City, the water level was about 4 ft. It is estimated that it will be several months before this area again returns to any degree of normalcy.

It is hard to visualize the tremendous job that lies ahead for this gas company in view of the fact that an estimated 300 propane tanks had floated away. Every possible way of finding and recovering these tanks was being done. (This includes the use of a boat.) In this connection the distinctive green color of the tanks owned by the Petrolane organization is a tremendous help. If the tank is green instead of aluminum colored, there is no doubt as to ownership. However, many of the Morrison customers have bought their own tanks,

The 250-gal. tank in the foreground is easily identified because it is painted green. Manager Red Andrews checks serial number of the 500-gal. aluminum colored tank to see if it belongs to his customer.

LPG tanks, oil drums, hay, drowned cattle—everything that would float drifted against the levees or went on down the river. Recovery of tanks took several weeks.

This 1130-gal. tank had floated five miles from a rice dryer up the river. The crane truck was invaluable for recovering tanks and loading them on trucks for return to customers.

and most of these are painted with aluminum. These must be identified by checking the manufacturer's plates for serial numbers, which are on record on the customer cards in the office. Not all of the competitive dealers have kept such records, so they are having a difficult time identifying their own and their customers' tanks.

Many stories of heroism and tragedy have been written and will continue to be written about the flood at Yuba City. In the midst of this, there is also a element of humor. One good customer, for instance, is a rancher, R. C. Farmer. Upon returning to his flooded home via an upstairs window, he was surprised to

Relaxed

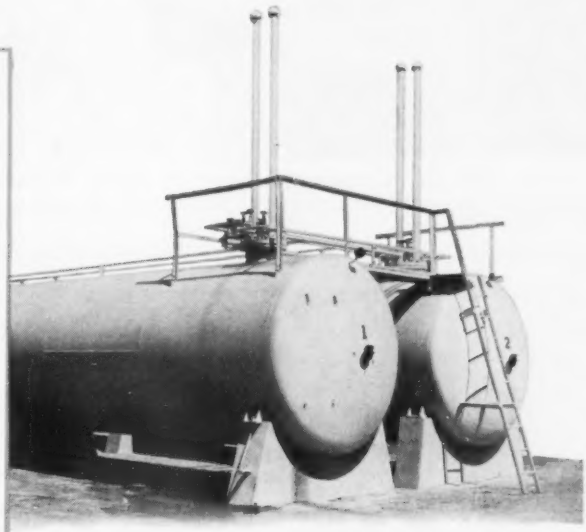
FOR LONGER LIFE!

First to recognize storage tanks need to be stress-free, too... acf pioneered in STRESS RELIEVING after complete fabrication. Every acf Tank...from the 30,000 gallon capacity down to the small ones...are heated in a huge oven to eliminate stresses set up during forming and welding. This process provides the tank with resistance to fatigue caused by temperature changes and pulsating loads. Result? acf customers are relaxed, too ...because they know their tanks are SAFER and LAST LONGER.

acf Tanks are available for LP gas, anhydrous ammonia, and other gases or liquids under pressure. For more specific details, write or call: Dept. B-3, American Car and Foundry Division, acf Industries, Incorporated, 30 Church Street, New York 8, New York.

ONLY acf OFFERS *ALL* THESE FEATURES

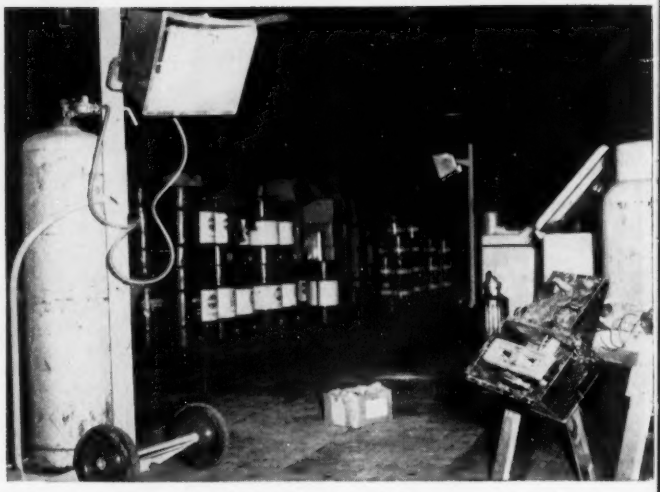
- **Complete Radiography** of every welded seam assures freedom from slag inclusions, porosity and undercutting.
- **Hartford Steam Boiler Inspection** in accordance with ASME 1952 Code W-XR-SR.
- **Steel Grit-Blasting** of tank exteriors to remove mill scale, resulting in a smooth surface for red lead primer.
- **Large Diameter Design** in all tank sizes require 30% less installation space and permit single-car shipment...cuts down weight for more economical rigging and handling.
- **Manway** for thorough internal inspection and cleaning.
- **Steel Saddles and Supports** for installation on flat foundations are optional.



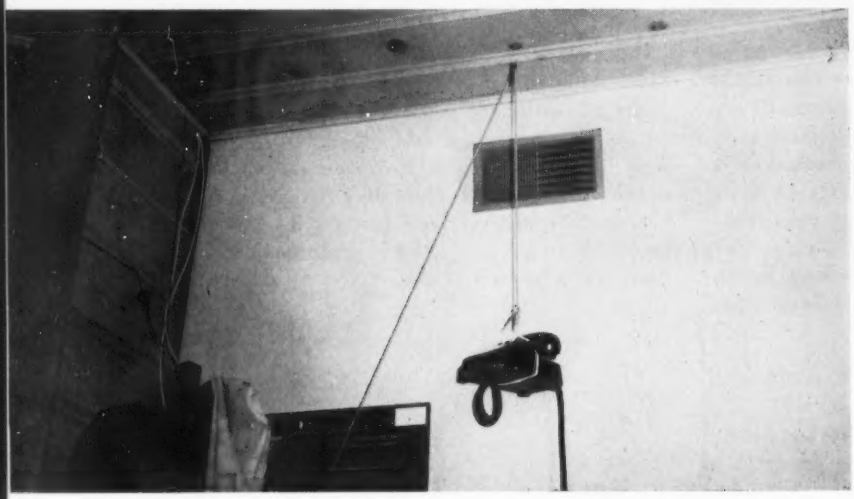
acf STORAGE TANKS • SAFETY VALVES

CALIFORNIA DEALER HARD HIT BY FLOOD

Red Andrews identifies a tank from a neighbor's house which lodged on this porch. Note that pressure of flood waters broke out the windows and pushed the water heater through the wall.



Dozens of control sets for Morrison Petroleum Co.'s customers' central heating plants and floor furnaces were dried out by means of this portable infra-red heater.



Once a flood victim, always a pessimist. Telephones in the Morrison Petroleum Co. offices were elevated to the ceiling each night as long as the threat of additional floods persisted.

find two live pigs had taken up residence on his favorite bed. Another customer, Earl Kay of Meridan, returned to find a confused cow who had found safety on his rooftop.

For the past several weeks the Morrison employees have worked far into the night, and seven days a week, to get their customers' gas service reestablished so they may resume normal living. This extra service burden was assumed without cost to the customers. When asked if this was done as an investment in public relations Manager Andrews said, "We didn't stop to think about public relations. These people are our neighbors and friends as well as our customers. We wouldn't like to try to go to sleep at night with the feeling that we had let them down. ■

FIRST THE FLOOD AND THEN THE FIRE

One of Morrison Petroleum Co.'s customers had finished reconditioning his flooded home for the return of his family. Gas service was reinstalled and tested, utilities turned on, rugs and furniture dried out, new bedding and mattresses supplied. When he brought his family back the next day the house was in ashes, apparently from an electrical short within the still-damp walls.

the LMC Money Maker

is on the road to setting new records in dealer profits

The LMC Money Maker with its increased capacity of 7500 to 8000 gallons with 250 lb. W.P. allows high payloads with a low tractor and trailer investment.

The neckdown design gives you a low center of gravity, higher road speeds and more gallons in your storage tank when you need them. Whatever your LP Gas transport problem, you'll find this unit is a Money Maker for you.

In states with higher legal weight limits, our 9000-plus gallon neckdown unit may be your best buy.

Buy on the LMC budget plan!

WRITE FOR ADDITIONAL INFORMATION, PRICES AND PAYLOADS

LUBBOCK MACHINE & SUPPLY CO

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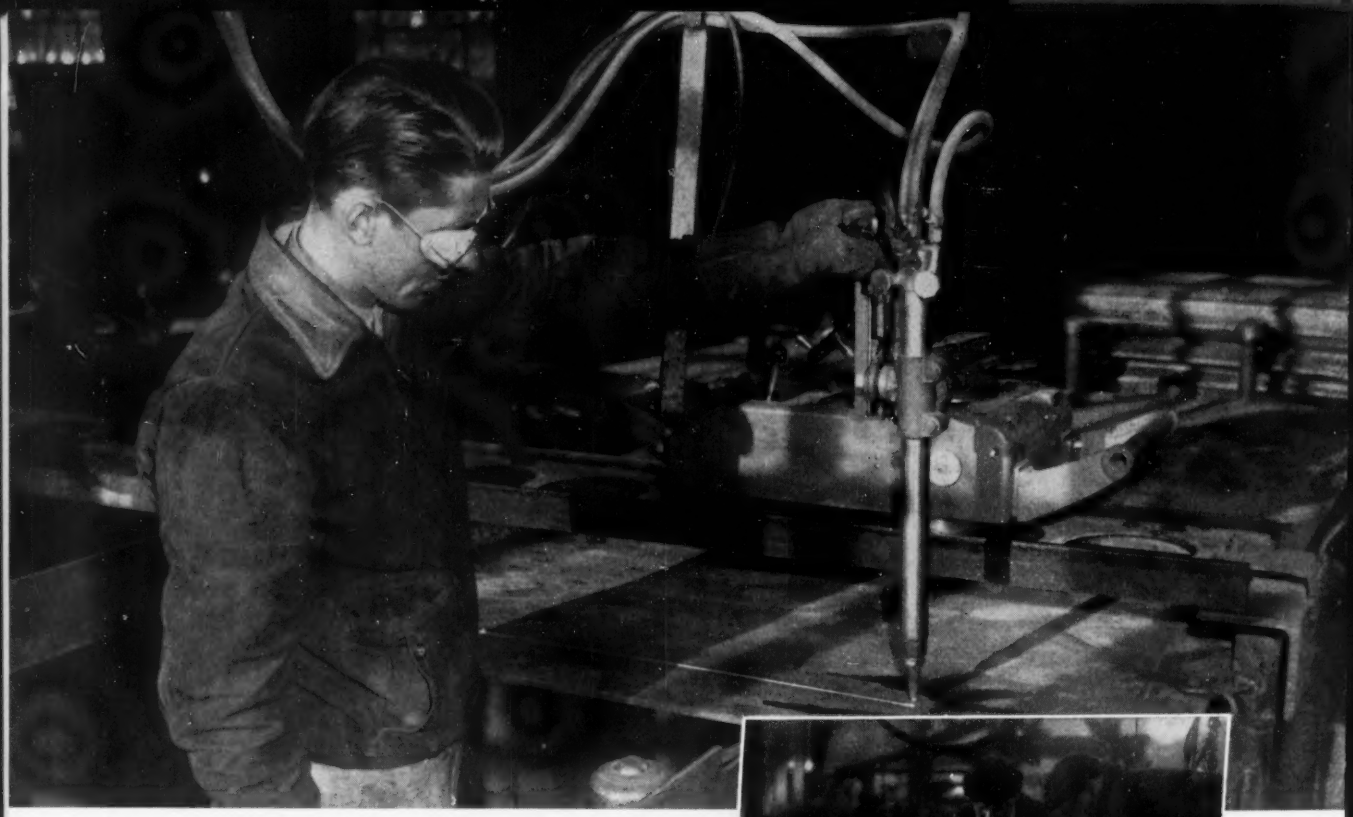
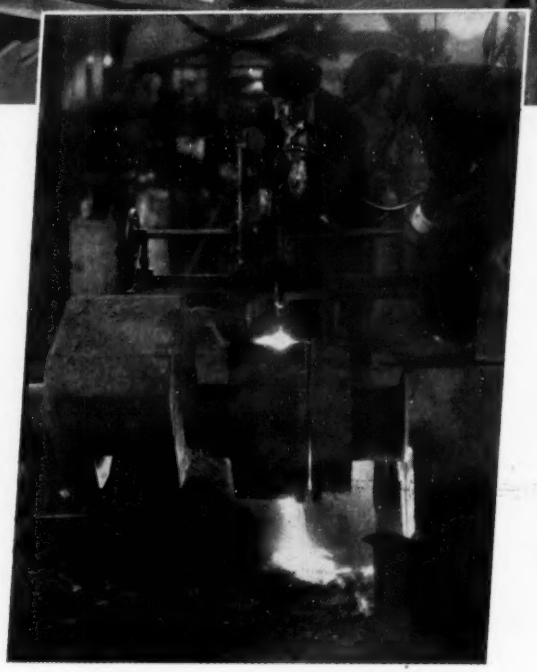
LOW MILEAGE COST



Propane makes clean economical cuts on either machine, of hand-torch operation. Propane torch (right) cutting a 24-in. billet of steel to make a diesel engine crankshaft. —Pictures courtesy Standard Oil Co. of Calif.

Selling propane for flame cutting fuel is easy— here's how...



By R. W. **BRENDLE** • Flame Cutting Equipment Co., Dania, Fla.

FLAME cutting of steel offers a wide market for propane in all industrialized areas, and even in the smallest communities there are repair shops, scrap yards or garages in which a certain amount can be sold. In addition, it can be the best possible door-opener to additional sales for other industrial uses in all sorts of metalworking activities. These include flame hardening, steel preheating, brazing, silver soldering, flame priming, flame descaling, heat treating, hard facing, paint drying and many other uses. These are desirable year-round loads—but first the L. P. gas dealer must get his foot in the door. The cutting torch, with tip designed especially for propane, is the most effective tool for making the entry. Propane is easy to sell if the correct steps are taken.

Flame cutting with propane is not a new process—it is a refinement of the process of cutting with acetylene gas, which was already well developed when the first L. P. gas came on the market. In the summer of 1911 J. F. Richardson, a pioneer producer of LPG, worked out methods of cutting steel in the Pittsburgh area, where it later became extensively used for cutting billets and removing

sitting pretty with Weathco® cylinders

...obtained on five year credit terms —now he's ready to expand because he can serve more customers. Why don't you do the same? The Weathco ICC cylinder line is complete and available in the following propane capacities: 100, 60 and 50 lb. for domestic and commercial use; 20 lb. for mobile homes, plumbers' pots and cash-carry systems. Weathco 100 lb. cylinders are dehydrated by newest drying methods to prevent freeze-ups, and feature:

heavy duty foot ring to "take" transportation handling.

easy-to-read collar stamped with ICC data and your company name.

undercoating to resist corrosion.

rugged construction for many years of service.

light weight for easy, speedy and low-cost handling.

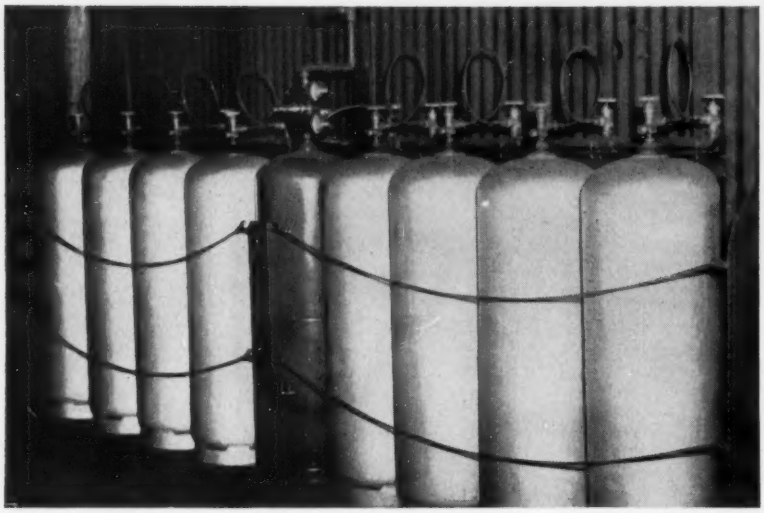
available with red oxide prime coat or aluminum finish.

Next time, order Weathco cylinders—they're priced right too!

New Catalog 1502 on Weathco LP-Gas equipment. For your copy, write The Weatherhead Company, 300 East 131 Street, Cleveland 8, Ohio. Warehouses in Atlanta, Georgia, and Memphis, Tennessee. In Canada: The Weatherhead Company of Canada, Ltd., St. Thomas, Ontario.

WEATHERHEAD

. . . is showing the way

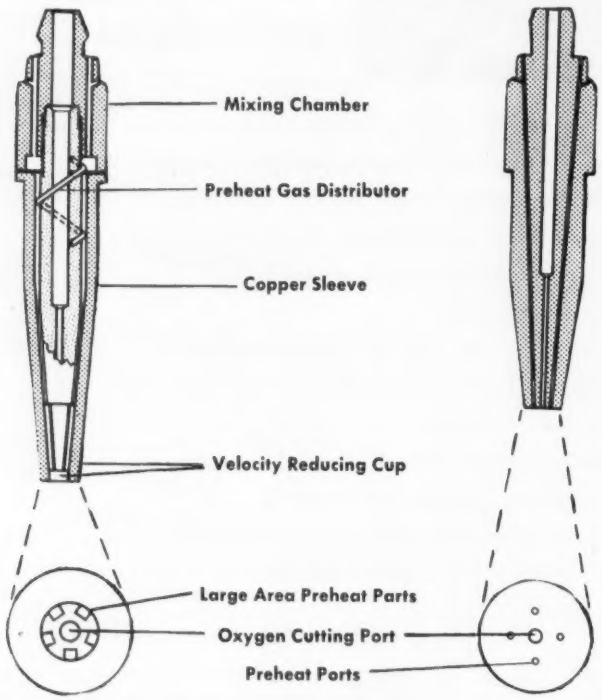


Cylinders may be manifolded together in any multiple to provide fuel supply for large operations, or if space permits a bulk tank in the yard may be utilized.

risers from large castings. This became the principal use for butane-propane mixtures until 1920.

The acetylene industry resisted this change, which was only natural. Millions of dollars were invested in acetylene plants and facilities, and the marketing organizations of the industry were manned by specialists. Acetylene is still fighting propane for the cutting gas market, but there is a major share of this business that can be done more economically with propane. This part can be gotten, but it will take intelligent, persistent effort, and the use of the correct methods and tools.

When L. P. gas was first introduced as cutting fuel the results were far from those that can be obtained at the present time. The early torch tips were only slightly modified from the design of their acetylene ancestors. With these hit-or-miss tips oxygen consumption frequently went sky high and gave propane a black eye as cutting fuel. With modern tip designs there is no important difference in oxygen consumption as compared with acetylene, but the outmoded figures of 30 years ago are still being quoted to prevent the sale of propane as cutting fuel. Basic chemical principles showed that these early disadvantages should not exist, and that the ultimate cost of cutting with the two fuels should be closely parallel to the relative Btu costs. Research on design of torches and tips soon eliminated the preliminary disadvantages. Now, with correctly designed equipment to back up your claims, you can get and hold this business.



OXY LP-GAS TIP OXY-ACETYLENE TIP

Typical design of propane cutting tip (left) and corresponding tip used with acetylene.

In promoting cutting fuel sales, the use of the right size tip, properly designed for L. P. gas, is of utmost importance. It is just as important as having the proper orifice in any other gas appliance. The use of an improper tip will make a dissatisfied customer, and will probably result in the loss of a sale. At the very best, preheating will be slow and oxygen consumption excessive during the preheat. When a man starts to cut steel he wants to get going.

The flame adjustment when using propane is most important. Adjustment is made as follows: First open the gas valve on the torch slightly and light the gas with a spark lighter, then slowly open the oxygen valve. Repeat this sequence, increasing the gas flow and then adding oxygen a step at a time until sufficient preheat flame is obtained. Jets are at maximum blue-white brilliance with minimum length, and flame has a roaring sound. More oxygen would cause the jets to become blue, indistinct and hazy, denoting a waste of oxygen. After the correct preheat flame is established, depress the high pressure oxygen lever and readjust the flame with cutting oxygen flowing.

Cutting technique is the same as with acetylene regardless of whether propane or butane is used as the fuel. Gas and oxygen pressures remain unchanged, as do cutting speeds. If the flame does not preheat fast enough, add more gas and oxygen until the torch produces a strong flame with a

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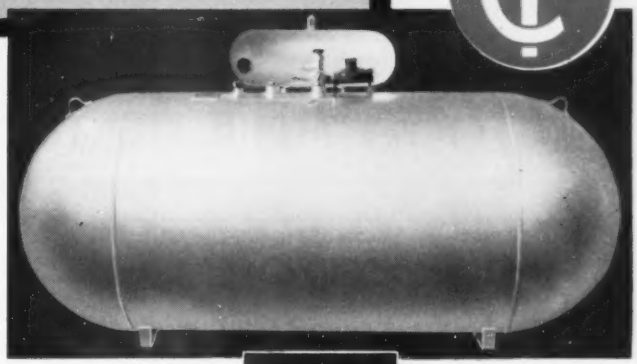

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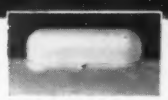

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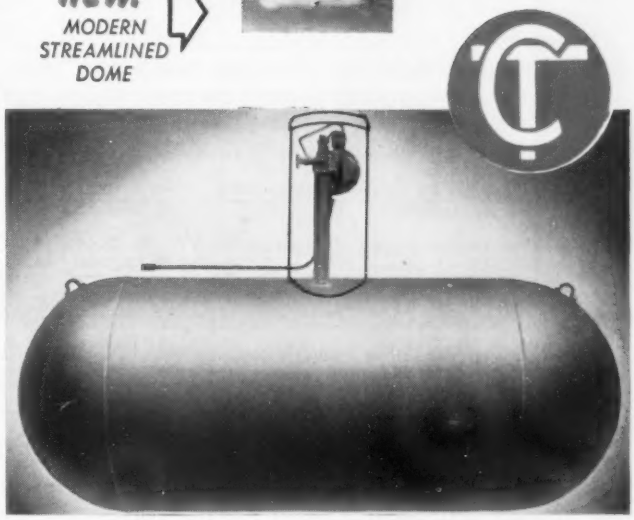

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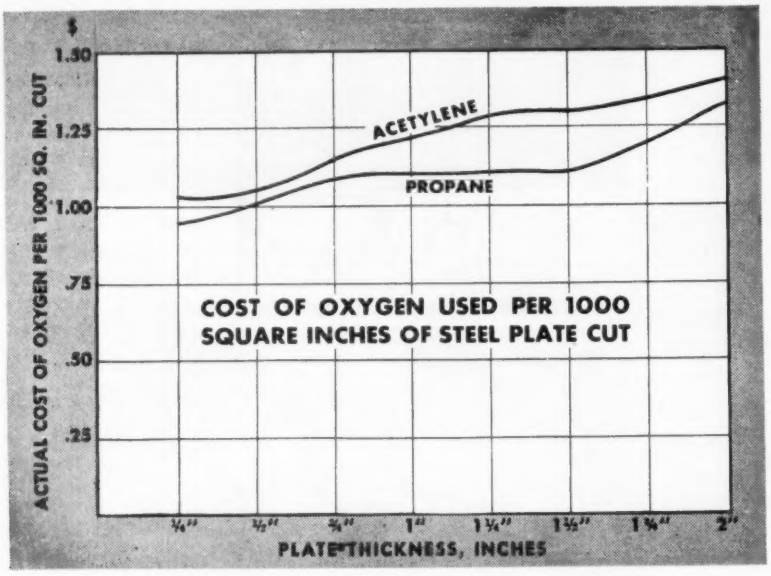
Flame cutting... Special tips are available for different types of cutting

roaring noise. The tips of the jets should be white, not dark blue.

Extremely clean cuts with almost no slag can be produced if proper speeds and pressures are used. If top edges are rounded, reduce the preheat flame. If slag adheres to the bottom of the cut, increase oxygen pressure or reduce the speed slightly. The correct size tip should be used in relation to the thickness of the metal to be cut. (With Proxy tips the tip number indicates the thickness that it will cut.)

touch the surface of the plate. If excessive slag forms, reduce the speed or increase the oxygen pressure. If the surface of the bevel is concave, reduce the cutting oxygen pressure.

It is not expected that every LPG salesman will become a cutting expert, but it is desirable to understand these cutting fundamentals in order to properly direct test work, and particularly to be in position to prevent coming out on the small end of the deal on account of an improperly conducted test that has been purposely



Oxy-propane cutting requires slightly less oxygen than oxy-acetylene.

Special tips are available for different types of cutting. On metal with clean surfaces and no scale, the so-called "economy style" tips will save gas. Hi-Speed style tips work better if most of the job is cutting long straight lines. Metal that is heavily scaled or very dirty or rusty needs what is known as a "hand cutting style" tip, which provides a heavier preheat.

Bevels may be cut with standard, hand-cutting or extra-preheat tips. To determine the proper tip size, measure the bevel cut surface. Use a stronger flame than for 90° cutting, with gas pressure set between 10 and 15 psi. Position the tip so the jets just

rigged to prevent good showing with LPG—and this has happened.

How to sell propane for oxygen cutting

Selling propane for cutting is relatively simple. Experience shows that the key appeals that get results are three in number—propane cuts better; propane is safer; cutting with propane is less expensive. The handling of propane cylinders is also easier and consumes less time. To the management this is one of the factors that make it less expensive. To the workman it is merely a means of making his job easier.

In general there are two techniques of selling cutting fuel—one is most useful in dealing with small firms where the contact is made directly with the owner or the plant superintendent. The second is most useful with larger concerns where the transaction must be handled through a purchasing agent.

It is always best to go through the "front office" in dealing with the larger companies, rather than to go through the shop and be turned down later by management. You may have to do some work on the shop crew to make the sale, but it is better to go there with the blessing of the proper executives, and this puts you in better position to get attention. And the shop people know that when the boss sends you back there for a demonstration and test he expects them to give you proper attention and to report the results.

What to tell the management

When talking to the owner or purchasing agent, the following points should be stressed:

1—Propane will give fine quality work with smoother cut surfaces and sharper edges at top and bottom. In the long run these characteristics of propane cutting will prove to be greater advantages than the dollar saving in the cost of gas.

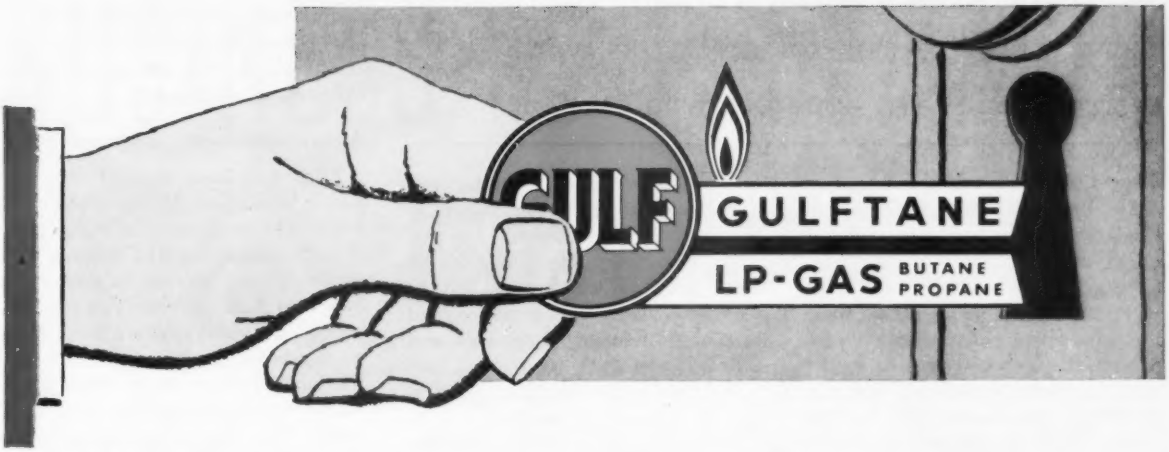
2—Less slag adheres to the cut edges, and it does not stick so tight. This results in lower cleaning costs than when acetylene is used.

3—Propane is safer to use. The fire hazard and the explosive range are far less than with acetylene. The explosive range of propane in air is between 2 and 9%—with leaner or richer mixtures it does not even burn. Acetylene's explosive range is from 2.5 to 80%. Because of this longer range the hazard with acetylene is almost 9 times as great as with propane.

4—Propane does not backfire in the torch as does acetylene, which is more hazardous in this respect than any other gas.

5—Cylinder handling is greatly reduced. If you use 60-lb cylinders, one cylinder of propane with a gross weight of 120 lb replaces four cylinders of acetylene weighing more than 1000 lb. The 100-lb propane cylinder will do the work of eight acetylene cylinders.

After stating these advantages to



This key can open the door to greater LP-Gas sales • • •

Here are three good reasons why it will pay you to buy Gulftane LP-Gas:

1 High quality—Gulftane is produced in plants of the latest design under accurately controlled conditions to specifications that meet the highest standards adopted by the LP-gas industry. It is free of moisture, gum, tar, dust, dirt, and sulphur. Or, to put it another way, Gulftane is the same high quality as Super-Refined No-Nox Gasoline and the other well-known products that carry the familiar Orange Disc trade mark.

2 Dependable supply — many natural gasoline plants and refineries, plus adequate storage, assure reliable, continuous supply.

3 Prompt delivery service—modern Gulftane producing plants strategically located throughout Gulf's wide-spread marketing territory, along with a fleet of new tank cars, assure prompt, efficient delivery service.

Also ready to serve you is Gulf's experienced engineering and marketing personnel. Get all the facts concerning Gulftane service—contact your local Gulf District Office or your nearest Gulf Division Sales Office (see addresses below).

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31 St. James Avenue
Boston 17, Mass.

Gulf Building
Houston 2, Texas

127 Elk Place
New Orleans 13, La.

17 Battery Place
New York 4, N. Y.

1515 Locust Street
Philadelphia 2, Pa.

National Bank Building
Toledo 1, Ohio

P. O. Box 1679
Denver 1, Colo.
(Zone Office)

230 No. Michigan Ave.
Chicago 1, Ill.
(Zone Office)

GULF OIL CORPORATION
GULF REFINING COMPANY
1822 Gulf Building, Pittsburgh 30, Pa.

MEMBER national LP-GAS PROMOTIONAL program

Flame cutting... Finer, smoother cuts with sharper edges are apparent with propane

the management, ask permission to make a demonstration in the plant. Explain (and this is very important) that you will not interfere with production, because all they need to do is to insert a propane tip in their torch and attach your cylinder of propane to the acetylene line, using the same regulator and hose, and the workman can proceed with his job without interrupting production. This is important, because the front office dislikes interrupting schedules to try out anything new. You should stress the point that in 15 minutes the operator can report whether your claims are true or not, because he does not change his speeds, pressures or procedures. He goes on cutting just as he did with acetylene. A comparison of what is cut under identical conditions will invariably show finer, smoother cuts with sharper edges than with acetylene.

What to tell the production boss

The shop superintendent or the foreman will take a little different viewpoint than the top management people. These men are interested not only in direct costs but also in the way the finished work affects other production procedures and problems. These points should be emphasized in talking to the shop bosses:

1—From the production point of view, propane will cut as fast as acetylene, using the same oxygen pressure, the same gas pressure, and the same size tip.

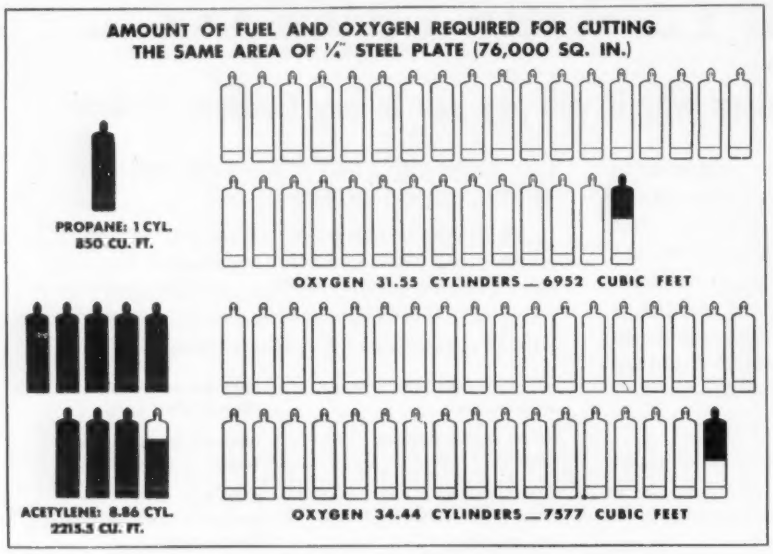
2—There is no appreciable difference in oxygen consumption.

3—Cuts are smoother, with fine sharp edges and less slag adhering to the plates. Less clean-up time is required.

4—In cutting thin plates, up to ¾ in., there is practically no warpage or distortion—much less than with acetylene. Less straightening time is required.

5—Propane does not harden the surfaces and edges of the cuts, as does acetylene. Many tests have shown the Brinell readings to be much lower than when the same material is cut with acetylene. This reduces the difficulty of any subsequent machining operations. Many propane users have reported that this results in greatly reduced spoilage of carbide tools.

6—Point out that there are less cylinders taking up the storage space that he needs, and less time lost in changing cylinders, since one 60-lb cylinder of propane takes the place of four cylinders of acetylene, and one 100-lb cylinder does the work of eight cylinders of acetylene.


AMOUNT OF FUEL AND OXYGEN REQUIRED FOR CUTTING THE SAME AREA OF ¼" STEEL PLATE (76,000 SQ. IN.)
PROPANE: 1 CYL. 850 CU. FT.
OXYGEN 31.55 CYLINDERS — 6952 CUBIC FEET
ACETYLENE: 8.86 CYL. 2215.5 CU. FT.
OXYGEN 34.44 CYLINDERS — 7577 CUBIC FEET

Less cylinders need to be handled when cutting with propane.

Advantages to the workman

After you have pointed out the above production advantages to the supervisor he will generally pass you on to the workman who is doing the cutting. *Do not attempt to show him how to cut!* He is probably an experienced burner and knows a great deal more about his job than you do. Workmen have pride in their own ability, and there is nothing that they resent more than to have an outsider come in and tell them how to do their work. That is just about the surest way there is to lose a sale.

Always ask the operator to make a sample cut first with acetylene, so he can set the pressures of his gas and oxygen and establish the speed at which he can cut. This is important. If he is prejudiced in favor of acetylene, and most cutters who have never used propane are generally prejudiced, he is going to do the best job he possibly can on this first cut. With the pressures established and the speed of cutting timed, you can merely change the regulator and hose to the propane cylinder, insert the propane tip in the torch, and have him repeat the test without any changes except to set the valves on the torch to produce the correct flame. Here is where you need to know what a good cutting flame looks like, so you can be sure you are getting a fair test.

In talking with the workman, these are the points to stress:

1—Propane will not back-fire. This is important to the cutter, as he is probably scared to death of all gases and he has had plenty of experience with backfiring of acetylene torches.

2—Point out that the propane flame is not incandescent—it is not painful to his eyes, and he can end the day with much less eyestrain.

3—Point out that he has nothing new to learn—the procedure of cutting and the pressures and speeds are the same as with acetylene.

4—Also show the operator the difference in weight and number of cylinders to be handled. He probably has to do this work himself, and the lighterweight and reduced number of cylinders to be changed should appeal to him.

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Designed specifically for perimeter-type systems used in many of the new, basementless homes. Approved for reduced clearance and closet installations. High capacity blower permits use with small duct systems. The elevated burner assembly is above floor dust and dirt. Easy front access to all parts and controls. Available in 80,000, 100,000 and 120,000 Btu/hr. inputs.

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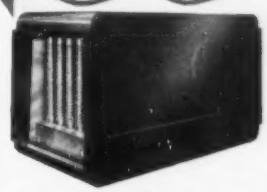

Gives you unusual flexibility. Installs suspended or on the floor in attic, crawl space, garage or basement. Adaptable to all distribution systems . . . conventional, perimeter or radiant. Easy access from either side. This model also gives top performance as a commercial-industrial unit heater. Filters are optional. Four sizes, from 65,000 to 150,000 Btu/hr. input.

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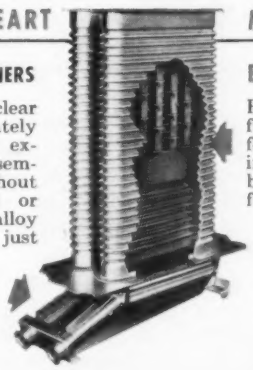

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Intense heat from a quiet, clear blue ribbon of flame is accurately centered below each heat exchanger tube. This burner assembly is easily removed without disturbing pilot, manifold or piping. The non-rusting, alloy burner ports are cleaned in just a few seconds.

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Surface Combustion Corporation, Columbus 16, Ohio
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These points are the ones that should have a personal appeal for the operator. In most cases he will not care whether the gas costs less or more, so the matter of cost should not be discussed unless he asks about it. He will like to do a better job with less work.

After you have proved your point and the operator tells his boss that he likes the fuel and is satisfied with the way it works, it is time to follow through to the front office and get the order for the cylinders of gas and the tips. It is best not to leave your demonstration cylinder of gas unless arrangements have been made to have them pay for it. What people do not pay for, they do not appreciate. And there is always a chance that they will refuse to believe that your demonstration cylinder was full.

COST OF FUEL USED PER 1000 SQUARE INCHES OF STEEL PLATE CUT

PLATE THICKNESS	COST OF PROPANE	COST OF ACETYLENE
¼"	15.2 CENTS	72.8 CENTS
½"	13.5 "	43.0 "
¾"	9.5 "	32.5 "
1"	9.5 "	30.0 "
1¼"	9.7 "	25.0 "
1½"	8.1 "	31.6 "
2"	8.6 "	24.4 "

Comparative fuel cost at regular commercial rates during tests conducted by Standard Oil Co. of New Jersey.

Meeting the prospect's objections

Prospects frequently raise objections on points that they do not understand, or on points that have been put in their minds by a representative of the acetylene company. In any case, an objection should not be taken for anything but what it really is —a request for more information. These are the objections most frequently raised:

Objection: Acetylene is more readily available.

The facts: Propane can now be obtained in any community, and it may be easier to obtain than acetylene. And because the cylinders last longer it does not need to be ordered as frequently. Less storage space is required for adequate reserve in the bigger operations.

Objection: Less oxygen is consumed with acetylene.

The facts: That used to be the case before special propane tips of modern design were available. Tests with modern tips show that for the same amount of work cut there is no appreciable difference. On heavy cutting more work will be turned out because it is not necessary to spend so much time changing gas cylinders. This extra cutting time will consume more gas, but it will be in proportion to the increased output of the cutter.

Objection: Acetylene is also used for brazing and welding.

The facts: Propane is always as good, and sometimes better, for brazing and all other operations performed with melted soft metals. It is not as satisfactory for ferrous welding. (This is a fact, and your prospect will respect you for being honest about it.) On the other hand 95% or more of the ferrous welding is now done with the electric arc.

Objection: Acetylene provides higher flame temperature than propane.

The facts: That is true, but such high temperatures are only needed for welding. Steel only needs from 1600 to 1800° of preheat for cutting.

Objection: Preheat is faster with acetylene.

The facts: With properly designed propane tips it is almost impossible to find any difference in preheat time. If acetylene is faster by seconds, this is more than made up by the freedom from adherent slag, which shortens the clean-up time in an amount that can be measured, and that can be important in a year's work.

Summary of advantages of propane

The greatest advantage of propane, which should be emphasized with all of your contacts in the office and the shop, is that it makes cleaner cuts with sharper edges, with less tendency to warp the piece and less adherent slag. In short, propane turns out better work and saves time in the operations which follow the cutting.

Propane is safer and easier on the workman. There are no flash-backs to cause flame hazards and loss of time; there is no soot to require extra cleaning; propane is non-toxic; the workman enjoys better visibility and freedom from optical fatigue because the flame is less dazzling; cylinder handling is greatly reduced.

Propane costs less than acetylene. In areas close to points of production it costs a great deal less, particularly if the operation is large enough to take advantage of bulk storage with fuel distributed through the plant in pipes.

And last but not least, the only equipment changes required are the torch tips, which are relatively inexpensive.

Fuel supply systems

Many LPG dealers find that industrial cutting fuel accounts are a good place to use the 60-lb cylinders which have now been replaced with larger storage units. The plant workmen prefer to use these small cylinders because of their light weight—120 lb filled compared with 170 lb for a 100-lb cylinder.

For large usage either the 60-lb or the 100-lb cylinders can be manifolded together, with up to 40 cylinders on a side of an automatic throw-over system. Such a system is simple, inexpensive, and economical to service, since you deliver one complete bank of cylinders (replacement of all on one side) at each trip.

Some of the larger metal fabricating plants have their own acetylene generators, with fuel piped to the work stations. Don't hesitate to move in on these accounts. The same piping can be used for propane—acetylene has much higher pressure than pro-

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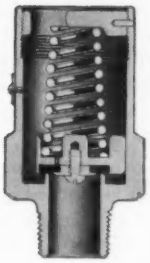
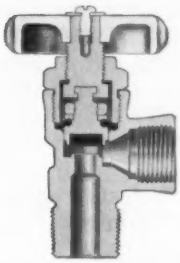
LP-GAS EQUIPMENT for CYLINDERS and TANKS



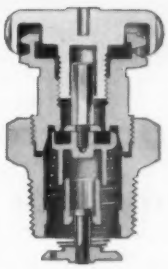
Type H185 EXTERNAL SAFETY RELIEF VALVE. Flow capacity: 2210 cfm air. Set pressure: 250 psi. For Type 200 containers.

Type H235 INTERNAL SAFETY RELIEF VALVE. Flow capacity: 2490 cfm air. Set pressure: 250 psi. For Type 200 containers.

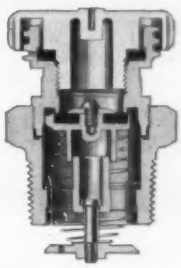
Type H260 INTERNAL SAFETY RELIEF VALVE. Flow capacity: 4450 cfm air. Set pressure: 250 psi. For Type 200 containers.



Type C100 SERVICE LINE SHUTOFF VALVE. Available in all standard model variations.



Type E-100 VAPOR RETURN VALVE. Flow Ratings — Butane: 25 psi inlet — 1910 cfh. Propane: 100 psi — 3695 cfh.



Type D126 FILLER VALVE. Provision for liquid withdrawal is incorporated.

Type J411 FIXED LIQUID LEVEL GAUGE. Also available without instruction dial — available as liquid level vent valve.

Type B101 CYLINDER VALVE with INTEGRAL SAFETY RELIEF VALVE. Suitable for use in 200 lb. ICC cylinders.

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GAS PLANT EQUIPMENT
AND INDUSTRIAL FURNACES

Flame cutting . . . Likely spots for LPG use

pane at atmospheric temperatures. That's why the cylinders must be so much heavier. The acetylene generator requires a good deal of attention, against which at least part of an employee's time must be charged. There is no such expense in connection with a propane supply tank—the dealer keeps it filled so there is a constant supply of fuel at no cost above the purchase price and the investment cost on the tank.

If you are called on to make recommendations for a plant piping system, don't let it throw you. You can estimate the load at the various stations, and then size the pipes just as you would in a domestic installation, using the same pipe-sizing tables. The lines will need to be of high pressure pipe, and the tank should be sized to provide sufficient vaporization in the tank, using a regulator at the tank so the system will pass the requirements of NFPA Pamphlet 58. If you need help in designing such a system the equipment manufacturers will help you, or you may call upon my company for assistance.

Watch for other plant uses for propane

Metal cutting is the easiest and best way to get your foot in the door of these big industrial accounts. You or your serviceman will be "on the inside," and if you keep your eyes open you can generally find other operations for which you can suggest the use of propane: Furnace brazing, burners in degreasing outfits, steam cleaners, hot water heaters, salamanders and other types of space heaters, paint drying ovens, heat treating or other type ovens, track switch heating, standby space heating when natural gas supply is inadequate or when other competitive fuels can be displaced, paint burning, glass and plastic spraying of vats and tanks, preheating metals for any purpose, conversion of plant fork-lift trucks, and many other applications. Any place where a flame is burning or heat can do a job should be investigated—it is a potential spot for L. P. gas. ■

The Texas Company

now brings you

TEXTANE

A Great NEW Texaco LP Product of Highest Quality

Here's good news for distributors: The Texas Company is now in the LP-Gas business with a product that matches the top quality of Texaco Sky Chief, Havoline Motor Oil and all the other products that carry the famous Texaco trade-mark.

It is TEXTANE. This new LP product is now available. TEXTANE is produced in twenty-five strategically located areas and is delivered in a brand new fleet of tank cars.

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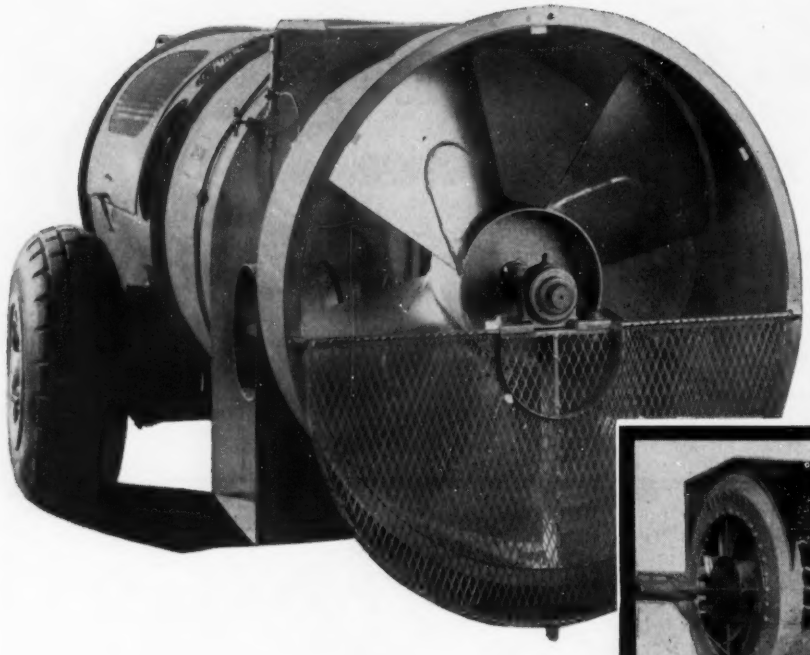
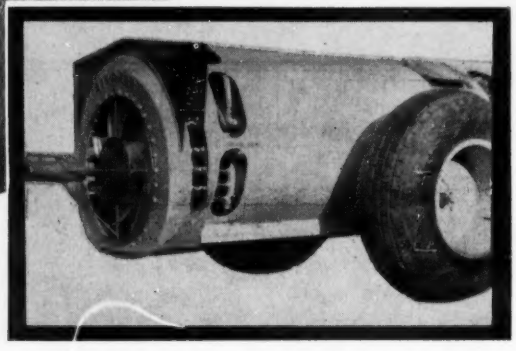
The Texas Company, LPG Sales Division, P. O. Box 2420, Philtower Building, Tulsa 2, Oklahoma. Telephone: DIamond 3-4101.





Air-O-Fan sprayer with propane burners mounted ahead of fan, and with sheet metal diverter across top to prevent upward waste of heat. Centrifugal-type sprayer (below) with single burner mounted at inlet of fan. Dark unit on top is the horizontal diverter.

Orchard sprayer may be adapted for frost protection

THE protection of orchard blooms and certain early crops from frost damage has always been a serious problem with farmers. Most of the equipment now in use for producing protective heat consists of stationary "smudge pots" in which fuel oil is burned. These generally produce a pall of smoke, which is undesirable in settled areas. The heating pattern is also far from ideal, as most of the heated air rises; the place that the heat is needed is near the ground.

Heating relatively large volumes of air, and ejecting into the orchard or along the ground by means of a horizontal blower that really puts some push behind it is much more effective than using smudge pots. The use of such equipment with propane burners supplying the heat provides a blanket of warm air at ground level. With fairly uniform temperature in this air it tends to remain on the ground instead of escaping upward as happens with spot heaters.

Heating a blanket of air 10 ft high over a 10-acre orchard requires approximately 1 million Btu for a temperature rise of 10°. If 4 million Btu per hour were introduced through high velocity horizontal blowers, it would provide good protection even with considerable wind, as this would provide complete replacement of the 10-ft blanket every 15 minutes.

This is the reasoning behind the recent development by Ransome Co. of a special burner system to install in the blower-type orchard sprayer to make it adaptable to frost protection service. The propane burners provide the heat, and the sprayer unit, properly shielded to direct the air out the sides, provides the means of distributing the heated air. Ransome Co. has developed a small, light-weight self-vaporizing burner with 2 million Btu/hr input especially for this service. One burner may be mounted on the intake side of the fan, and another at the outlet if needed to supply additional heat. The standard sprayer unit, equipped for heating, may then be towed around the orchard or field, distributing the heat where it is needed. The equipment needed for the conversion of the sprayer is available as a package unit.

This conversion heater was not designed or intended to replace the large capacity orchard heaters which have been engineered and built by several manufacturers expressly for frost control. Such heaters are reliable and effective, and due to their larger capacity they can provide frost protection under more severe conditions and over larger areas than will the conversion units. These latter can be quickly installed by the LPG dealer on the sprayer units that the farmers now have, to provide protection within the capacity of the units, and at very reasonable cost. A metal diverter placed over the top of the blower outlet is necessary in order to prevent wastage of heat through the creation of up-drafts. This can be fashioned by the local sheet metal shop. ■

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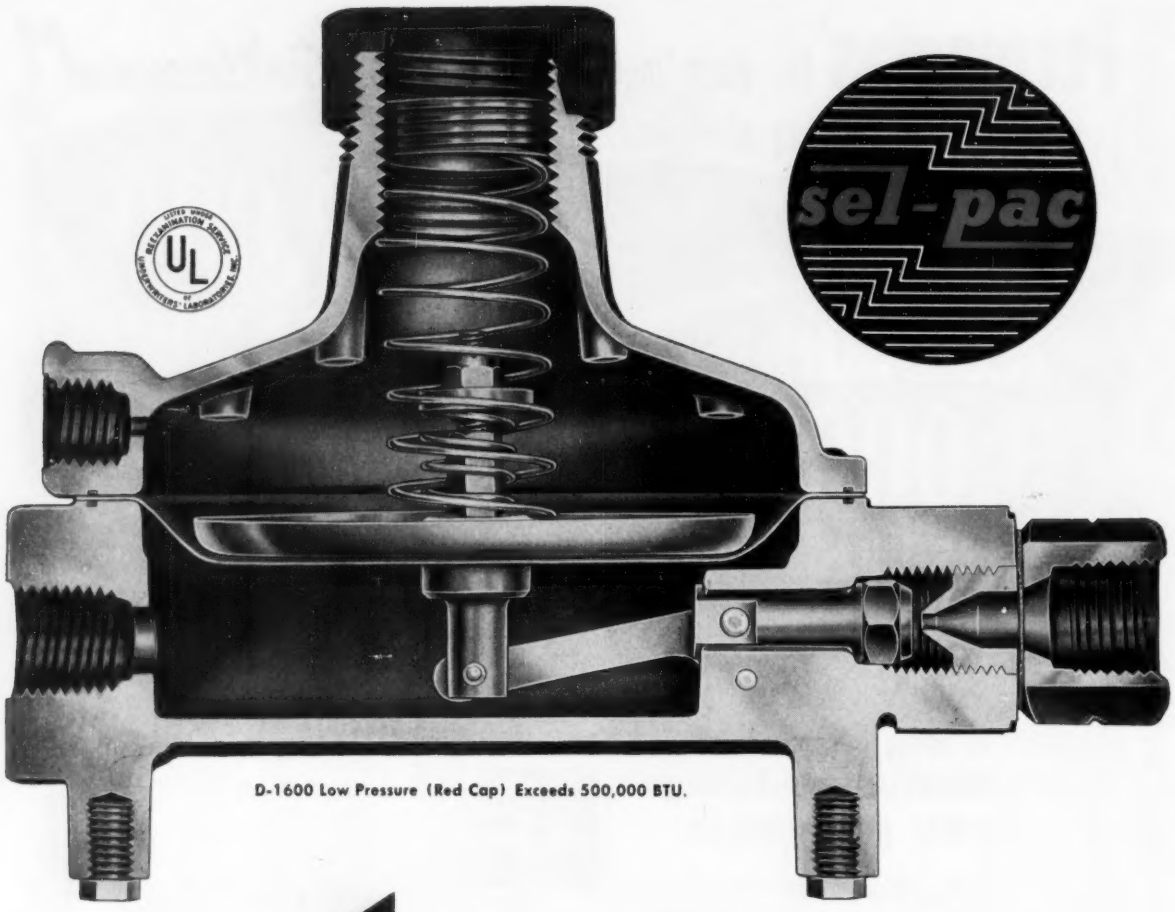


D-1600 Low Pressure (Red Cap) Exceeds 500,000 BTU.

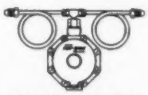
1st IN REGULATOR PERFORMANCE

D-1600 HP High Pressure (Red Body) Exceeds 2,500,000 BTU Under Extreme Winter Conditions.

D-1610 Recommended for 500 to 1000 Gallon Tanks. Exceeds 1,125,000 BTU At Ten Pounds Inlet Pressure.

These Sel-Pac Regulators will accommodate practically all LP-Gas load requirements including single and two stage systems — bottle or bulk. Similar in design simplicity, with many parts interchangeable, reduces dealers' inventory and handling costs. High in capacity with extra large orifices, especially designed to prevent freeze-ups, saves you hundreds of dollars in service calls. All Sel-Pac Regulators are rugged in construction and incorporate heavy wrench bosses to aid installation.

FIRST in performance and LOWEST in price per cubic foot of capacity you will be time and money ahead to specify Sel-Pac. Complete regulator application data are yours for the asking. No obligation, of course.



D-250 Assembly

D-251 Assembly

D-255 Assembly

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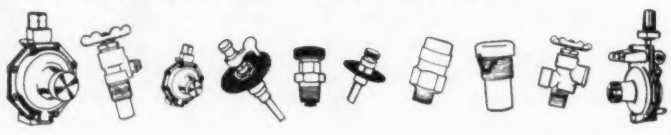

ADVERTISEMENT

WINTER FREEZE-UPS NEED NOT OCCUR

by GEORGE R. POSTLEWAIT
President
SELWYN-PACIFIC COMPANY

Many Service Calls are blamed on regulators for which they are not responsible. Many could be avoided by a little common sense. We often hear, "The Regulator froze up and shut off the gas". *Regulators don't freeze up.* Water in systems can freeze and cause trouble. So (1) Be sure your gas is free of moisture when received. (2) Be sure all hoses, fittings handling equipment, tanks, etc. have been properly dried before LP-Gas reaches them. (3) Be sure all regulators are sufficiently protected from the weather to prevent water from collecting, thus interfering with proper operation.

Knowing that you will not be 100% successful in keeping all moisture out of systems, the following service tips will help minimize freezeups. (1) Use 2 stages of regulation. (2) Be sure the pigtail leading from the valve to the regulator *slopes upward* to the regulator inlet. Then, if moisture vapor condenses in the colder pigtail, it drains back into the tank. (Low points in the pigtail can become water traps and when the water freezes, it blocks the line carrying gas to the regulator. (3) Use larger diameter pigtails which have more cross sectional area and are harder to "freeze shut". (4) Use large orifice regulators since they don't ice up as quickly as small orifices. (5) Keep all valves and openings closed on *empty* LP-containers. This prevents breathing with resultant condensing of moisture inside container. (6) Properly purge all new tanks and cylinders before charging.

In using 2 stage regulation (1) Use regulators which have no low points or water traps around the seat of the high pressure regulator inlet. Trapped water forms ice and prevents operation of regulator. (2) Use a large diaphragm linkage type 1st stage regulator to insure high capacity and low lockups. (High lockups on 1st stage can cause trouble in winter operation) (3) Don't set the delivery pressure too high. This permits recondensation of liquid which can't be handled by the second stage regulator. (A regulator with a 20 P.S.I. Lockup would permit the vapor in the line leading to the second stage regulator to liquify at −5°F. A regulator with a 5 P.S.I. lockup would permit a −20°F temperature before liquifying) (4) Use properly sized lines on all installations.

Know your product and its characteristics! Good sense saves good dollars!

SELWYN-PACIFIC COMPANY
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Morris Horn cooks up another batch of popcorn on his LPG-fired popper. Note L. P. gas bottle in left foreground.

How much popcorn will an LPG popper pop?

L. P. gas at an electric co-op picnic? It's hard to believe and you might even doubt it, but Morris Horn of Beech Grove, Ark., will swear to it. And he should know, because it's his portable popcorn popper (LPG-fired, of course) that was there.

Popcorn Popper Horn got a pretty big kick out of using bottled gas at an electric affair. "Nowadays you can find electricity just about anywhere you go, but with this little bottle of gas, I just don't have to worry at all. If I had an electric popper and a wire broke, say right now, I'd just be out of business until I could take it to town and get it repaired," is the way he put to a reporter who interviewed him at the picnic.

"There's nothing to know about this rig of mine. This copper tube brings the gas from the bottle to the stove. If it breaks, I can fix it myself, but it hasn't yet."

The "stove" of the popper is a single burner, surrounded on four sides by a sheetmetal box to keep the wind from blowing out the flame. The gas cylinder sits just a foot away on a little stool beside the box (photo).

The popper is a 10-quart stainless steel pot. Half of the lid is a permanent part of the pot, while the other half is hinged so that it will open and close.

For about a dozen years now Mr. Horn has been following the crowds, popping hundreds of bushels of popcorn in his homemade popper. He makes the livestock sales barns regularly, and shows up just about every week at the Nettleton stock yard auctions.

Mr. Horn claims that he can keep up with any electric popper ever made. And, his grains pop more completely with fewer hardtacks.

When asked what else he does for a living, Mr. Horn replied, "This is it. I operate my popcorn machine all summer long. In the winter I sell hot tamales, too. I make enough money to live on, and get to visit a lot of people." ■

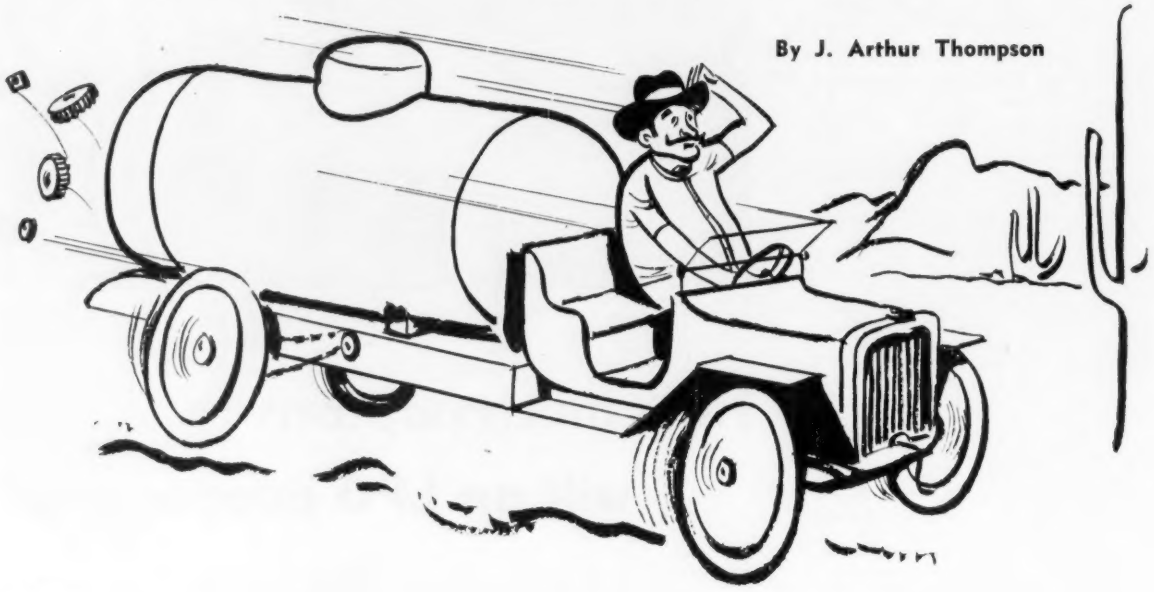
BUTANE-PROPANE News got this story from the **Mississippi LP-Gas News**, who credited it to Jerry I. Ponder of Jonesboro (Ark.) Butane Gas Co. The story originally appeared in the Jonesboro **Sun**.

EPISODE NO. 8

PROPANE PETE

Hot foot for a gila monster

By J. Arthur Thompson



THE country around Globe and Miami, Ariz., is just no place for a stranger to wander around without a competent chaperone, preferably a desert-wise horse that'll stand without hitchin'. In fact, a lot of old-timers have gotten themselves lost without half trying. The sage clad slopes of the Superstition Mountains all look pretty much alike. The hills are all about the same size and there are lots of them.

If you get off the main road 300 or 400 yards on a cloudy day, you'd better have a good sense of direction if you expect to get back very soon.

This is the country where the famous old Dutchman found a fabulously rich gold mine and then finally lost the mine and himself, too. Thousands of folks have looked for that mine since he lost it, and nobody has found it yet.

Propane Pete was down in that corner of the country one time and figured he'd have a try at findin' the mine of the lost Dutchman. He drove his ramshackle old truck, Beepee, back into the hills and wandered around for quite a spell. After a bit he discovered that he was just plumb lost. It was winter time and unusually cold.

He drove to the top of one of them hills but couldn't locate himself. He just let Beepee coast down hill and got to goin' pretty fast. About halfway down he hit three big bumps, one right after another. There was a rattle and clash and something dropped off from under the truck. But he couldn't stop. He coasted clear to the bottom.

When he stopped and looked under the truck, he found he'd lost all of the gears out of his transmission. It was gettin' towards night and he knew those gears had probably flown all over kingdom come. It looked like a pretty tough spot. So he just made camp for the night.

He just got his burner rigged up when he heard someone callin'. He looked around and saw three fellers staggerin' towards him up a ravine.

Those three young fellers was just about played out. They told Pete they'd been out huntin' the Dutchman's mine and their horses had run off with their blankets and all their grub. They had a compass and knew which way to go, but they hadn't had a bite to eat for nearly 24 hours.

Pete had plenty of grub and water, so he cooks up a good bait of beans and sow-belly on his propane stove while they looked on goggle-eyed at this new fangled way of cookin' out in the open. Pete expounds all about L. P. gas to them and they listened while they ate. They introduces themselves as the Fannin Brothers—Ernie, Paul and Ray.

After a little pow-wow, they decides to camp with Pete for the night and maybe in the morning Pete can find his gears and they can all ride out. It was a long ways to anywhere from that spot.

That night everyone slept snug and comfortable from the warmth of the propane heater that Pete had rigged up. Next mornni' it was colder than ever.

A new record in payload!

This Butler Big B (big barrel) transport hauls

8290 gallons of LP-Gas!

Record payloads are the rule instead of the exception with Butler Big B Transports. But this Big B transport recently built for Blue Flame Gas of Buffington, Indiana is exceptional even for Butler. To the best of our knowledge, it is the largest single unit LP-Gas semi-trailer in operation today. Designed and built for Indiana's 72,000 lbs. gross limit, it carries 9400 gallons (W.C.).

You'll get record payloads, too with a Big B sized for your gross weight limit. Big B's single-barrel design gives you 28% more payload than double-barrel transports. The amount of steel necessary to meet ASME codes has been cut to a minimum by X-ray inspection and stress relief of the pressure vessel.

Butler engineers have done even more to give you a bonus payload. By designing for the closest possible adherence to codes, they have stripped another 1000 lbs. out of the Big B to give you 200 extra gallons of bonus capacity over almost every other single-barrel transport for the road.

You'll save 30-40 minutes per haul with Big B's fast filling. It fills almost twice as fast as other transports — and puts you on the road minutes sooner. If you make short hauls, this one advantage alone can mean extra trips per day and that much more revenue.

See for yourself how much more you could make with the Big B in your LP Gas fleet. Mail coupon for catalog.

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Everybody looks for them gears, but they don't find but one and that won't do any good. Pete just ain't goin' to leave old Beepee behind and he looks some more. Comin' down the mountainside where he hit the three big bumps, he finds three huge gila monsters. They was darned near as big as horses.

Now a gila monster is a sort of a lizard and when he is real cold you can do just about anything with him. But when he gets warmed up, he moves like greased lightning and he'll bite you quicker'n a wink. Old-timers say his bite is almost certain and sudden death.

Pete studies them varmints for a bit and then calls the boys up to them. They ain't never seen any that size before. He has them roll them down to where the truck is. Then he puts the boys to catchin' rattlesnakes.

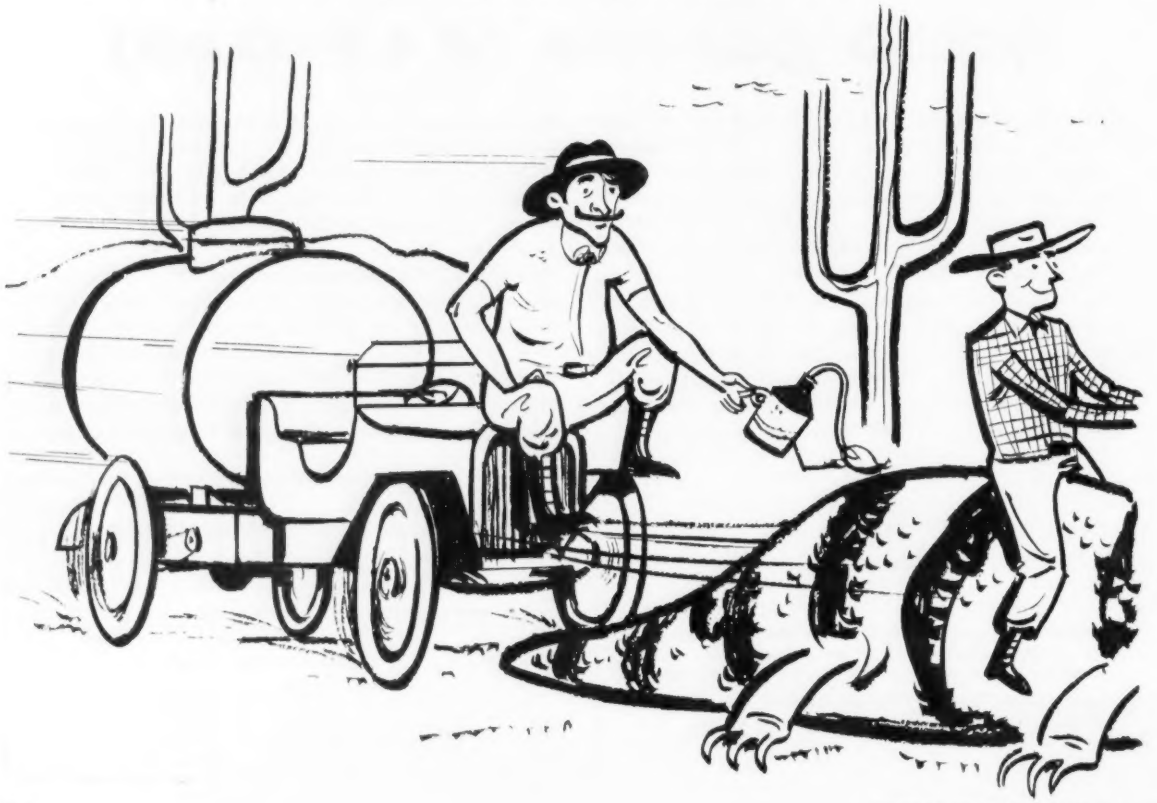
They found about a dozen good-sized rattlers that was too cold to protest and Pete skinned them and made harnesses out of the hides. Then he made muzzles out of the scraps that was left over.

They muzzled them three gila monsters and hitched them to the truck. Pete loaded everything up. Then he has the boys get on them varmints and he pulled his hose around in front. Ernie Fannin was ridin' the middle one and carryin' the compass, Paul was on the right, and Ray was ridin' the left one.

When they was all set, Propane Pete lights the gas comin' out the hose and warms up them animals; gives them a sort of hot foot. They starts out on the run. Pete steers the truck and keeps squirtin' just enough burnin' propane on them to keep them movin' good. Ernie does the guidin' with the compass.

Well, sir, they all gets back down to Miami in less time than you'd ever believe. They didn't dare unhitch until Pete has cooled them off with a little straight liquid propane. After they got them unhitched, some kid come along when they wasn't lookin' and lit a match. The propane ignited and them gila monsters took off for the hills. They never did see them again.

Pete found some gears in a Stutz Bearcat that he fitted into Beepee and took off for the East. The Fannin boys finally wound up over in Phoenix and started an L. P. gas business which Ernie and Paul run, while Ray sells propane tanks all over the West. ■



Okay . . . I WILL say it again . . .

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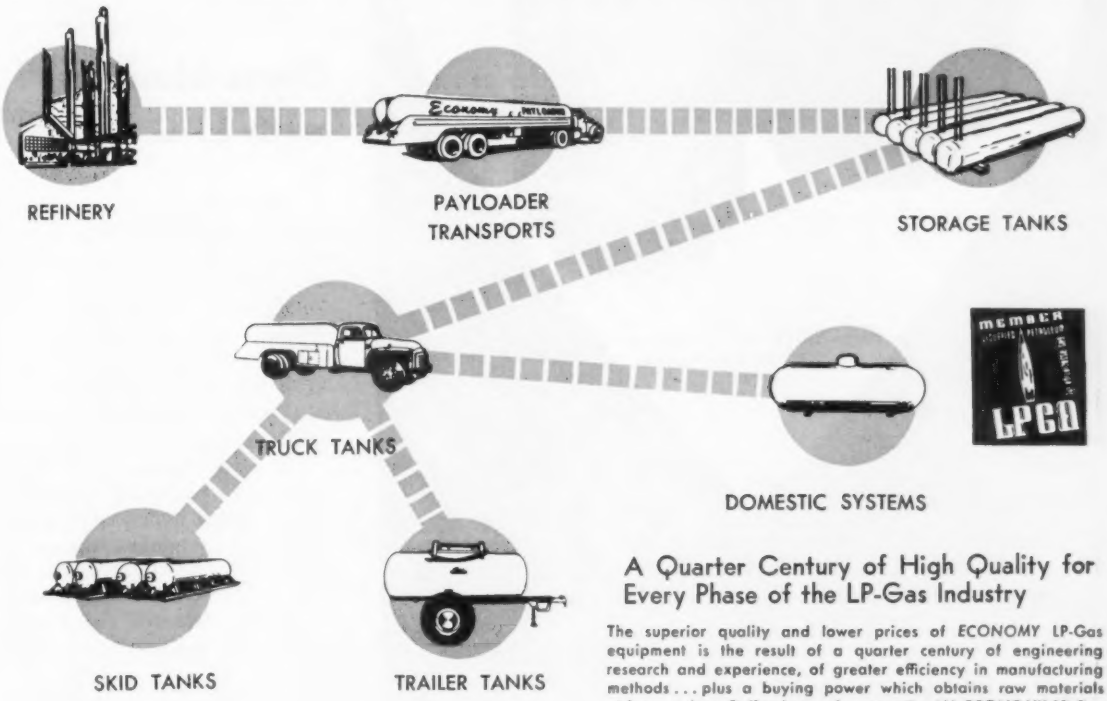

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Glass blowing with LPG

PYROFAX gas (highly refined propane) is being mixed with hydrogen as fuel for glass blowing at the Electronic Tube division of Sperry Corp. The division, which formerly used "straight" hydrogen, recently moved to Gainesville, Fla. Between 8000 and 10,000 gal. of L. P. gas per year will be used—the equivalent of between 800,000 and 1 MMcf of natural gas.

Excessive luminosity, or "glare," a condition frequently encountered when burning hydrocarbon gases in glass-firing equipment, was eliminated by Sperry and Pyrofax Gas Corp. engineers by carefully pre-mixing a controlled amount of air or oxygen with the Pyrofax gas before burning it.

Sperry needed a gas of high purity and uniformity, substantially free from sulfur. This last is significant only in certain kinds of glass blowing. Because sulfur tends to corrode equipment, however, Pyrofax has long "re-refined" its product to eliminate it, and to insure a high standard of quality.

A 1000-gal. tank has been installed at the Sperry plant, which will be filled by Central Florida Gas & Appliance Co. The plant is also equipped to use L. P. gas in a standby generator, to insure continuous operation in the event of an electrical power failure. ■

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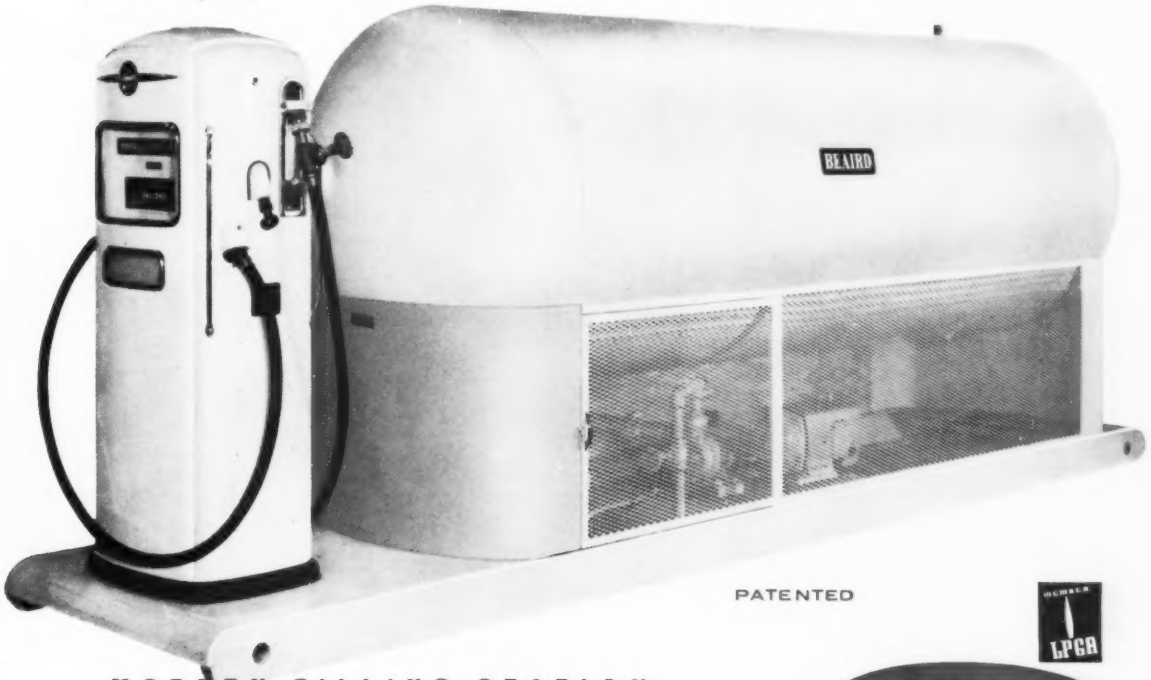

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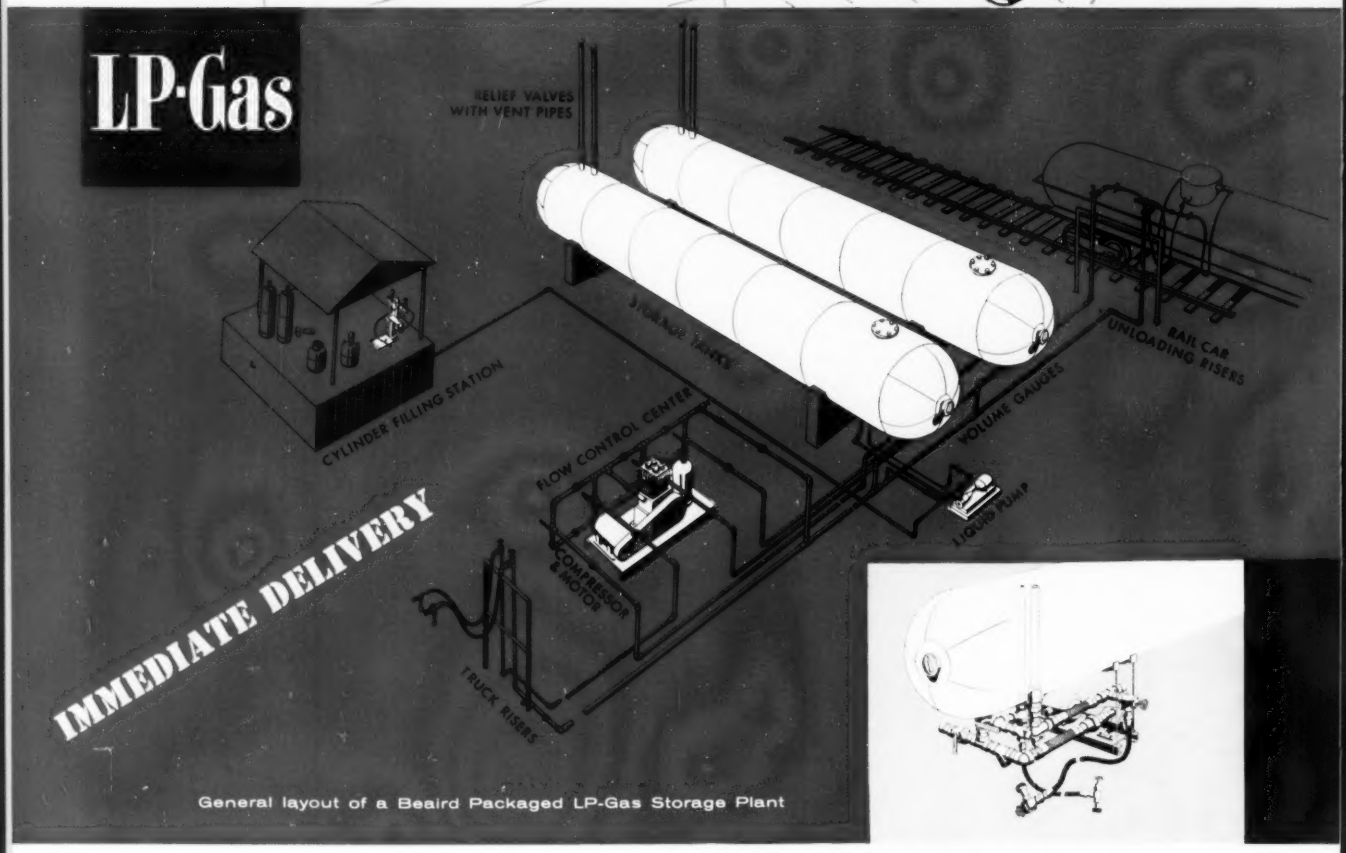

General layout of a Beaird Packaged LP-Gas Storage Plant

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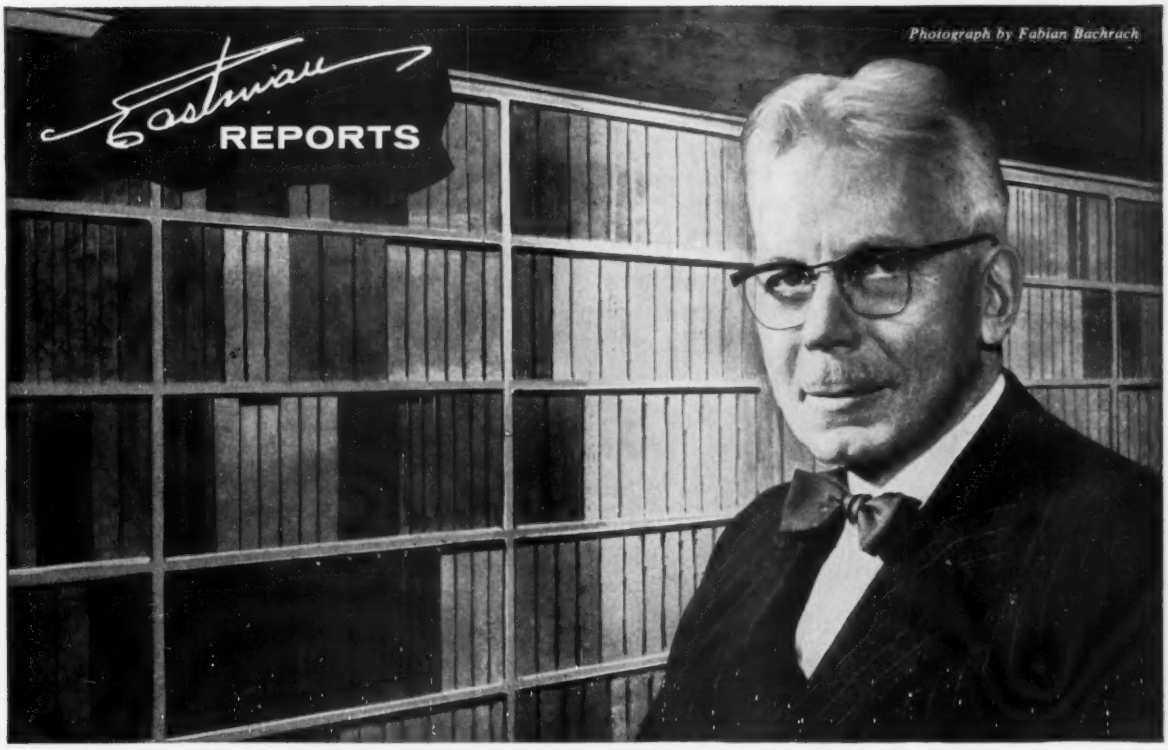

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"The overall results of a year's inquiry on this subject (32 surveys for 18 publications) show that the average exposure to advertising is *70% intentional,* only 30% accidental.

"Moreover, 94% of the readers of these publications, on the average, reported that they gave conscious attention to the advertising."

Advertisements in Business Publications reach an audience that's interested in your message . . . an audience that wants to read what you have to say.

NATIONAL BUSINESS PUBLICATIONS, INC. *1413 K Street, N. W., Washington 5, D. C. • STerling 3-7535*

The national association of publishers of 173 technical, professional, scientific, industrial, merchandising and marketing magazines, having a combined circulation of 4,098,937 . . . audited by either the Audit Bureau of Circulations or Business Publications Audit of Circulation, Inc. . . . serving and promoting the Business Press of America . . . bringing thousands of pages of specialized know-how and advertising to the men who make decisions in the businesses, industries, sciences and professions...pin-pointing the market of your choice.

Write for a list of the NPB publications and the "Here's How" booklet, "How Well Will We Have to Sell Tomorrow?", written by Ralston B. Reid, Advertising & Sales Promotion Manager of the Apparatus Sales Division, General Electric Company.

CALENDAR

March 4-6 — Indiana LPGA Convention and Trade Show — Claypool Hotel, Indianapolis.

March 10 — Idaho L. P. Gas Association Spring Convention—Bannock Hotel, Pocatello.

March 20-21 — Iowa LPGA Convention—Savery Hotel, Des Moines.

March 26-28 — Southeastern District LPGA convention and trade show, Atlanta-Biltmore Hotel, Atlanta.

March 28-30—Illinois LPGA Convention—St. Nicholas Hotel, Springfield.

March 29—Liquefied Petroleum Gas Association of New England Annual Convention—Boston.

April 5—GAMA 7th Annual Atomic Gas Range conference, Hotel Pierre, New York City.

April 6-7—Northwest District LPGA Annual Convention — Multnomah Hotel, Portland, Oregon.

April 9-11 — Legal Symposium on Natural Gas Legislation (AGA)—Waldorf-Astoria Hotel, New York.

April 12-13 — South Dakota LP Gas Convention—Marvin Hughitt Hotel, Huron, S. D.

April 13-14—Western Liquid Gas Association Convention and Trade Show — Hacienda Motel, Fresno, Calif.

April 18-19 — Midwest L. P. Gas Service School—Iowa State College, Ames, Iowa.

April 22-24 — Mississippi LP Gas Dealers Association Annual Convention — Edgewater Gulf Hotel, Edgewater Park, Miss.

April 23-24 — Montana LPGA Annual Meeting, Northern Hotel, Billings.

April 23-25—Association of Nebraska LPG Dealers, annual state convention, Fontenelle hotel, Omaha.

April 28—Nevada Liquefied Gas Dealers Spring Meeting, Ely, Nev.

May 6-9—LPGA 25th annual convention and trade show, Conrad Hilton hotel, Chicago.

May 20-25—Alabama L. P. Gas Service School—Tuscaloosa, Ala.

June 4-8—National Fire Protection Association 60th Annual Meeting — Hotel Statler, Boston, Mass.

June 4-June 29 — Short Course in Gas Technology — North Carolina State College, Raleigh.

June 10-12—Arkansas LP Gas Association Annual Convention — Arlington Hotel, Hot Springs, Ark.

June 10-12—Alabama L. P. Gas Sales Clinic—Birmingham, Ala.

June 18-20—Missouri L-P Gas Association 11th Annual Convention and Trade Show — Muehlebach Hotel, Kansas City, Mo.

June 20-22 — Southwestern Butane Exposition (Texas Butane Dealers Association)—Dallas.

June 28-29—Central States L. P. Gas Management Conference—University of Kansas, Lawrence, Kan.

June, 1956—Alabama L. P. Gas Carburetion School—Birmingham, Ala.

July 9-August 4 — Short Course in Gas Technology (2nd section) — North Carolina State College, Raleigh.

August 1-3—Central States L. P. Gas Service School—University of Kansas, Lawrence, Kan.

Aug. 5-7—Alabama LP Gas Association Convention — Dinkler-Tutwiler Hotel, Birmingham.

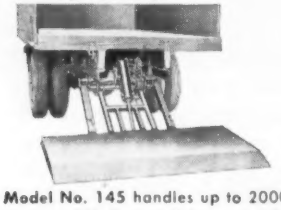
Here's trucking *AUTOMATION* that lets you combat High Cost Hauling

Cost saving way to handle heavy packaged goods such as *barrels, cylinders, carboys, crates,* etc. One man with a hand truck can handle any loading or unloading operation at big savings of time.

ANTHONY LIFT GATES

FOR ¾ TON and Larger Trucks and Semi-Trailers

Model No. 144 handles loads up to 1000 lbs. Cuts loading and unloading time 50%.



Model No. 145 handles up to 2000 lbs. on 1½-Ton and larger trucks and semi-trailers.

Model No. 146 handles up to 4000 lbs. on heavy trucks and semi-trailers.

If high freight rates and costly delivery services are cutting a swath out of your profit picture, here are five ways you can offset them.

1. Speed up deliveries.
2. Develop faster, easier ways of loading and unloading trucks.
3. Systematize handling of bulky, awkward, heavy shipments.
4. Prevent damage to goods, yet make it easier and safer for drivers to handle most shipments alone.
5. Help drivers contribute to the satisfaction of the receiver.

All of these advantages are yours when you install Lift Gates on your trucks. We will be glad to recommend the systems, the size and type of Gate best suited for your work.

Write, wire or call us today—no obligation. One of our representatives is nearby.

ANTHONY LIFT GATE HYDRAULIC

ANTHONY COMPANY
Streator, Illinois
Dept. 5610

The true story of Lawrence Olson:

THE MAN WHO SAVED A TOWN

with Cities Service Propane

The snow was heavy and the time was short. Throughout the area of Madison, Wisconsin, one after another LPG distributor was running out of LP-Gas at a time when customers needed it most for heating and cooking.

A crippling strike had completely cut off supply by rail . . . and the deepening snow was rapidly choking off delivery by truck. Finally, no distributor was receiving shipment . . . none, that is, except Lawrence Olson, Cities Service Distributor.

When no other supplier dared send its trucks through the ice and snow-covered roads, Cities Service continued its deliveries and Lawrence Olson soon became the only man with a supply of LP-Gas. His job: meet the desperate needs of all propane users in a 40-mile radius of Madison.

Doing this as best he could, he suddenly found himself confronted with an even greater problem!

Late one evening, he received an emergency phone call from the town of Monroe, 55 miles away. Monroe's municipal gas supply was running out. By the following day, the entire town would be without heat.

Olson said he'd try to deliver . . . but between him and Monroe stood the night, the snow, and 55 miles. Loading a bobtail transport with Cities Service propane, he set out on his race against time.

Minutes before daybreak, Olson won the race! . . . And an entire town was saved.

Cities Service is proud to be associated with such a man . . . proud, too, that we were able to play a part in his outstanding service to the community. We hope that a similar situation never arises again . . . but if it does, you can be sure we stand ready to repeat our role for whomever the Cities Service Distributor may be.

SERVICE! . . . Part of our name, part of our business.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

406 W. 34th Street, Kansas City, Missouri
500 Robert Street, St. Paul, Minnesota
20 N. Wacker Drive, Chicago, Illinois
6611 Euclid Avenue, Cleveland, Ohio

could you deliver 30% more LP gas..with two drivers less?

That's what Ranchers Gas and Supply Co. did (5 instead of 7 drivers) right through the season, in the Rocky Mountain cold country of Wyoming!

These economies were made possible through use of a unique Degree-Day record system whereby fuel consumption records for each customer are kept in a single Kardex pocket. On the basis of these records delivery routes are set up so drivers achieve maximum productivity.

Simplicity of Kardex Degree-Day System

The Degree-Day system of LP Gas delivery control tells you in advance

1 **Which customers need LP Gas**

2 **How much they need**

3 **Where they are located**

4 **When delivery should be made**

What's more, all this information is constantly available at the flip of a finger... in fact, a mere glance at the visible margins of the Kardex pockets shows the customer names, addresses, deliveries and colored signals indicating when next delivery should be made.

Increase Profits... Reduce Costs

This Kardex Degree-Day system gives you at a glance the information to greatly improve your service... to effect important economies. You can cut delivery costs through better routing... reduce out-of-gas calls and expensive special trips. You will actually sell more LP Gas at a bigger profit since purchasers' needs are filled "automatically" as they arise. In addition, this information helps salesmen show customers when they have insufficient storage facilities. This alone is a big factor in the success of a sales campaign.

Get the fully detailed story on how this Wyoming distributor increased profits and reduced costs with the Kardex Degree-Day system of LP Gas deliveries – circle KD788 on the coupon... also, folder KD778 – What Every LP Dealer Should Know About Cost-Saving Delivery Control.

Kindly send literature circled:

KD788 KD778

NAME_____

TITLE_____

FIRM_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Remington Rand

DIVISION OF SPERRY RAND CORPORATION

Room 1395, 315 Fourth Avenue, New York 10, N. Y.

BPN ASSOCIATIONS

Legal symposium to discuss gas legislation

On April 9-11, the American Gas Association, in cooperation with the Practicing Law Institute, will sponsor a legal symposium covering natural gas legislation before Congress. Meeting place will be the Waldorf Astoria hotel in New York City.

Since the available supply and delivered price of L. P. gas components are closely associated with the production and at-the-well prices of natural gas, this meeting and the effect it has on the enactment of the Harris and Fulbright bills, will be of immediate concern to the liquefied petroleum gas industry.

Discussions will cover a broad outline of legislation before Congress. Viewpoints of producer, pipeline and distributing companies on these subjects will be analyzed. Another topic will be the impact of proposed bills on contract prices.

One session of the symposium will be devoted to explanations and interpretations of recent judicial decisions on cases involving the Natural Gas Act. The discussion also will include problems pertaining to distribution, underground storage, and other operational topics.

DeLaughter is president of Arkansas LPG dealers

At the mid-year meeting of the Arkansas L. P. Gas Association, held in Little Rock in January, George W. DeLaughter of Sparkman, Ark., was elected president, succeeding James S. Moseley Jr. of North Little Rock.

Other officers include Kohn Bray of Marked Tree and L. L. Rambo of Clarksville, vice presidents, and Joe McKim, Little Rock, treasurer.

New directors are Howard Rogers, Thomas B. Griffin, Ray Martin, Pat Riley Jr., Roy G. Thrash, Richard A. Carver, Cy Carney Jr., Jack Plemmons, Alex S. Hill Jr., and Albert M. Heringer Jr.

Michigan dealers elect M. R. Frank president

Two-hundred and fifty L. P. gasmen attended the Jan. 30-31 convention of the Michigan L. P. Gas Association, at which M. R. Frank of Adrian, Mich., was elected president.

Speakers at the Detroit convention included J. F. Danielson, Whirlpool-Seeger Corp., who spoke on clothes dryer service; Chris Neeley, LPGA staff engineer, safe practices; K. R. D. Wolfe, Fisher Governor Co., "If Gas Is to Survive"; Ben Gault, Robertshaw-Fulton, automatic controls; Larry Ash, Coleman Co., installation and venting of LPG heating appliances; G. W. Keller, Ensign Carburetor Co., L. P. gas as engine fuel; C. Edward Reiner, Whirlpool-Seeger, automatic gas dryer sales; L. C. Wright, Michigan LPGA Civil Defense participation; and C. T. Hendrix, Industrial Gastruck Engineering Co., LPG-powered fork lift trucks.

One of the highlights of the convention was a tour of the Steel Cooperage plant, under the direction of James P. Parker, sales manager of the company.

Other officers elected at the convention include Alton Berquist, of Carney, vice president, and J. O. Gower, Eureka, secretary-treasurer. New directors are Russ Mueller, Clark Olson, and Fred Koehler.

LPG equipment manufacturers . . .

CAN YOU AFFORD NOT TO FINANCE YOUR CUSTOMERS?

F.A.C.'S *flexible finance plan helps you gain new customers, keep old ones.*

Today your customers are demanding long-term financing. When they don't get it, they don't buy. F.A.C.'s installment sales financing plan meets this demand with a sound, business-like solution to your customer's financing problems.

This service is flexible, so you can adapt it to any particular sales situation. We serve many of the nation's leading LPG equipment manufacturers—financing every product from small cylinders to huge bulk storage tanks.

F.A.C.'s Flexible Financing Plan gives you an extra sales tool—because it's another reason for prospects to buy from you. Why not meet their demand? Don't lose customers. Finance them. We urge you to telephone or wire—one of our officers will be glad to serve you.

FAC Plan FIRST ACCEPTANCE CORPORATION

Minneapolis 2, Minnesota 820 Northwestern Bank Bldg. FEderal 9-7711

Discount Bankers Serving Manufacturers of LP Gas Equipment

Successful carburetion school held at U. of Kansas

More than 110 L. P. gasmen, representing 74 companies, attended the Central States' L. P. gas carburetion school, conducted recently by Kansas State College Department of Agricultural Engineering in cooperation with the LPGA. States represented include Kansas, Oklahoma, Missouri, Nebraska, Iowa, California, Illinois, and Louisiana.

According to Amos Kramer, district secretary, the highly successful school was highlighted by excellent speakers, an interesting trade show, and unusual entertainment.

Lectures during the three-day session covered LPG carburetion from the standpoint of theory, practicality, economics, experience, and the future.

Indianans to meet for annual convention

In addition to the film of the atomic bomb test at Yucca Flats, Nev., attendants at the March 4-6 convention and trade show of the Indiana L. P. Gas Association will participate in a four-hour sales clinic featuring Fred A. Palmer, nationally known trade consultant.

There will also be a panel discussion on pertinent state industry problems and a breakfast meeting for marketers and dealers to discuss pressing legislative developments.

The meeting place is the Claypool hotel in Indianapolis. Social events will include a Smorgasbord, cocktail party, steak dinner, and floor show, according to Ralph Martin, 1956 convention chairman.

Management and service conferences scheduled

Two programs are being developed by the Central States district of the LPGA and the University of Kansas, to be held later in the year.

The Central States management conference is scheduled at Lawrence, Kan., for June 28-29. The service school will be held on Aug. 1-3.

Non-members learn about Virginia group activities

A dinner meeting of the western district of the Virginia L-P Bottled Gas Association was held in Lynchburg, Va., late in January. The meeting, which was attended by 43 member and non-member dealers from the western part of the state, was called to acquaint the non-members with the functions and program of the Virginia and national LPGA.

The program included talks by Virginia President Robert E. Leitch, Ben Gault of Robertshaw Controls on the new thermostatically controlled top burner, and by Ray Cassett of Tidewater Gas Co. on Operation Cue.

President Leitch stated that, in hopes of bringing local dealers closer together and in aiding the membership campaign, a similar meeting is planned for the eastern district at Virginia Beach in May.

At the board of directors meeting prior to the dinner meeting, it was decided that the annual state convention would be held on Sept. 17-18 at the Ingleside hotel in Staunton, Va.

Freight rate increase brings industry protest

The railroads' demand for an estimated $8 million annual increase in freight rates now being paid by the L. P. gas industry would drive still more gallonage from the rails, according to a protest filed Jan. 31 by Liquefied Petroleum Gas Association and the Natural Gasoline Association of America.

LPGA acted for the L. P. gas in-

Mr. LPG Dealer... we've got news for you!

SUPERIOR LPG Systems bring

the **SERVICE** you've been waiting for!

DOMESTIC SYSTEMS . . . One tank or a truckload. Every tank . . . every fitting more than meets ASME, local and national specifications. Sell safety, sell quality, *sell service* with SUPERIOR.

TRUCK TANKS . . . manufactured in our plant to conform to rigid standards. Sizes to fit your need! We mount on your truck or furnish complete unit.

FARMS AND INDUSTRIAL . . . SUPERIOR tractor fuel tanks . . . auxiliary industrial tanks, portable tanks built to your customer's need. *Sell service* with SUPERIOR!

We invite inquiries now.

Thirty-five years of LPG experience combines manufacturing know-how with a thorough knowledge of dealer problems. Yes, SUPERIOR service plus quality, plus safety means you can do a better, quicker, more profitable job. Call or write for details.

SUPERIOR TANK CORPORATION

Tel. (Clarkston) 3-7151
4846 Lawrenceville Hwy.
Tucker, Georgia

Why '56 Ford Trucks can bring new savings to your delivery work

Most horsepower per dollar in the '56 Ford F-500. Proved by comparisons of net horsepower and suggested list prices of *all* 1½-tonners!

Cut delivery time with Short Stroke power!

Want a delivery truck that has the power to keep up with traffic, save road time? Want more power *reserve* for safer passing, easier hill climbing? Ford's new F-500 makes all this possible with two engines of proven Short Stroke design. Take your choice of the new 133-hp *Cost Cutter* Six or the new 167-hp *Power King* V-8. Each is designed to give more usable power with more miles per gallon and less engine wear per mile.

Cut driver fatigue, increase safety with *Driverized* Cabs!

Only Ford offers the safety and comfort of *Driverized* Cabs! Both, Standard and *Custom* Cabs, have the driver convenience of widest opening doors of any leading truck . . . new full-wrap windshield. AND, new *Lifeguard* Design. Deep-center steering wheel cushions the driver from steering post . . . double-grip door latches help protect against doors jarring open in accidents. Seat belts optional at extra cost.

Cut per-unit delivery costs with new, bigger payloads!

Now, take over 1,000 lbs. more load on every trip! New 15,000-lb. GVW boosts the F-500's top body and payload allowance to a whopping 10,495 lbs. There's new value *throughout:* new stronger frame . . . new high-capacity *tubeless* tires . . . new, more durable transmission . . . new bigger brakes, with Power Braking *standard* with V-8 engine. To get the *most* truck for your money, call your Ford Dealer now!

ONLY '56 FORD TRUCKS GIVE YOU THESE MONEY-MAKING FEATURES

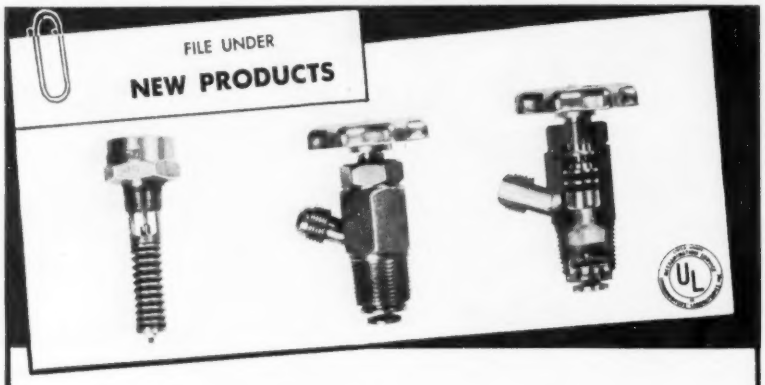
- The most power per dollar—proved by comparisons of net horsepower and suggested list prices of *all* truck lines!
- Short Stroke power *standard* in every truck. Choose from a Six and *seven* V-8's, from 133 to a mighty 200 horsepower!
- New tubeless tires *standard* on every model, a Ford *first*. They run up to 25° cooler, last longer, resist punctures!
- Level-Action Cab mounting on every truck, reduces road vibration and twist, for added comfort . . . longer truck life.

dustry in its request to the Interstate Commerce Commission which is now considering the roads' request for a 7% freight rate increase.

The protest asked ICC to suspend the proposed tariffs on LPG pending a detailed study of the question and requested separate hearings which would divorce the L. P. gas case from the other freight commodities.

Railroads are hauling smaller proportions of liquefied petroleum gas every year despite steady increases in total sales. Since 1952 railroads' share of the total L. P. gas haul rose 23%; trucks carried 64% more gas.

Attending the meeting of the LPGA transportation committee in St. Louis recently were (clockwise around the table): C. L. Leonard, Lone Star Gas Co.; L. T. Meador, Sun Oil Co.; R. P. Jackson, Suburban Propane Gas Corp., J. K. Smith, Metrogas Inc.; F. C. Tighe, Pyrofax Gas Corp.; H. A. Busten, Warren Petroleum Corp.; C. H. Wager, Shell Oil Co.; A. C. Kreutzer, LPGA counsel; Fred Shellhorn, Anchor Petroleum Co.; C. W. Guy, Texas Natural Gasoline Co.; J. W. Stanard and L. J. Trahan, General Gas Corp.; Arthur Delau, United Petroleum Gas Co.; D. A. Patterson, Phillips Petroleum Co.; Jack Hackett, Home Gas Co.; and F. M. Holloway, Skelly Oil Co.



NEW MOTOR FUEL TANK FITTINGS

CONTOUR SHUT-OFF VALVES

¾" INTERNAL RELIEF VALVES

For easy tube connection the new Roney contour shut-off valves are tops. They eliminate the bend in tubing which occurred in the old type shut-off valves. This valve has been thoroughly tested and proven. After 10,000 operating cycles in a laboratory test the valve is still in good condition.

You'll want Roney's new No. 2115 internal relief valve because it fits a ¾" coupling to save on cost. Now ALL your tank fittings will fit ¾" couplings. Flows 1309 C.F.M.

All Roney tank fittings are designed to conform closely to the tank shell for greater protection.

COMPLETE SETS MOTOR FUEL TANK FITTINGS

(May be purchased in sets or separately)

2 shut-off valves, No. 815.....

1 relief valve No. 2115.....

1 filler valve No. 2667.....

1 vapor valve No. 2779.....

1 outage gauge No. 13.....

1 rotary gauge No. 120.....

(specify mounting and tank dia.)

CONTOUR VALVE SPECIFICATIONS

Valve No.	SAE Tube Outlet	Male Inlet with Excess Flow
No. 814	⅜"	¾"
No. 815	⅜" with 20° <	¾"
No. 816	⅜"	¾" tapped ⅜" fe. NPT for diptube
No. 817	⅜" with 20° <	¾" tapped ⅜" fe. NPT for diptube

SPECIFY RONEY FITTINGS ON YOUR NEXT TANK ORDER

RONEY INC. 105 COLE STREET DALLAS 7, TEXAS

COMPLETE SUPPLIERS OF NH3 AND LPG EQUIPMENT

The LPGA-NGAA protest also pointed out that LPGA tank cars are 100% owned and maintained by the industry. The roads have based their rate boost, in part, on increased car maintenance charges.

The two associations are being represented by Arthur C. Kreutzer, LPGA counsel.

Tank manufacturers elect new slate of officers

New officers were elected by the National Tank Manufacturers Association at a recent meeting.

C. J. Bender, president of Trinity Steel Co., Dallas, is president; F. T. Carpenter, president of United Petroleum Gas Co., Minneapolis, vice president; Max Watterman, vice president of Anco Manufacturing & Supply Co., Tulsa, is secretary-treasurer.

West Coast L. P. gasmen to gather in Fresno

What is expected to be the largest convention and trade show of L. P. gas dealers in California and on the West Coast will be held at the Hacienda Motel in Fresno, Calif., on April 13-14.

The convention of the Western Liquid Gas Association, according to Douglas C. Westerhout, will feature a program of outstanding interest to all concerned with the industry.

Don't miss the boat

Climb aboard, now, for the cruise to Summer Profits!

A leading financial journal lists WEED BURNING as one of three newer uses that will enable the LP-Gas industry to continue its phenomenal growth. LP-Gas dealers rank WEED BURNING eighth among products to promote in '56. Two years ago, Weed Burning didn't even appear in the first twenty! Weed Burning is growing . . . fast!

Weed Burning offers unlimited opportunities for increasing summer loads . . . weeds are a universal problem . . . cost American farmers billions of dollars annually. Weed Burning is big but, it's going to get bigger! Don't miss the boat . . . climb aboard, now!

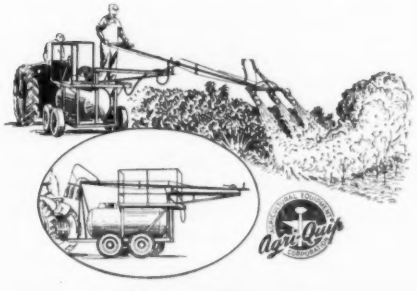
Write today for full information on WEED BURNING . . . catalog, price list and dealer helps available. Don't miss the boat!

Agricultural Equipment Corporation

Pioneer Manufacturers of LP-Gas Burners for Agricultural and Industrial Applications.

Box 200-G **La Junta, Colorado**

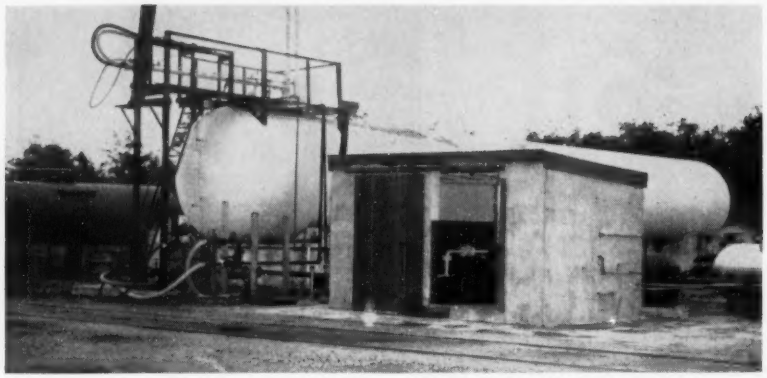
Agri-Quip offers you the most complete line of LP-Gas Weed Burners . . . 15 models . . . from a single burner, portable hand type unit to the large, heavy duty, mounted ditch bank burner. A model for every need!



MODEL 4 T-60-250

A completely self-contained two-burner unit mounted on four-wheel trailer with 250-gallon fuel tank.

Twelve-month modernization program completed



One of the 30,000-gal. storage tanks at the Wyandanch plant of Conservative Gas. The top-loading platform (older piping) will continue to serve for railroad tank car deliveries. New piping appears at base of tank. In the foreground is new pump house of cinder block construction.

TAKE it from Conservative Gas: "A liquefied petroleum gas organization that tries to run an inefficient bulk plant is just sabotaging itself."

Opened in 1934 as Long Island's first bulk L. P. gas plant, the Wyandanch plant served fewer than 1000 customers. Today, the facility is one of the largest in the industry and serves more than 25,000 accounts with a total annual fuel gas gallonage near 5 million. During the 20-odd year history of constantly increasing sales, the plant "just growed like Topsy."

In 1953, the new management (Conservative Gas now operates as a division of National Propane Corp.) was faced with the problem of increasing plant output and efficiency. An obvious method would have been to continue the Topsy system by adding a few more lines of pipe and another bulk storage tank.

Basis of problem

In a recent interview, Carl A. Jacobson, vice president of National Propane and general manager of Conservative Gas, stated, "Careful study of the problem by our engineering staff revealed the basis of the problem . . . inadequate piping and uneconomical use of equipment, particularly pumps and compressors."

Mr. Jacobson continued, "The planned program, which included complete repiping and installation of new pumping equipment, did not in-

the finest float gauge

YOU CAN BUY IS A . . .

VISIBLE

MAGNETIC

For any application . . . in storage facilities for LP-Gas or Ammonia, domestic or commercial . . . there's a "Visible" Float Gauge!

And of course, it's the very finest in quality of craftsmanship and materials . . . precision made . . . accurately calibrated . . . thoroughly tested!

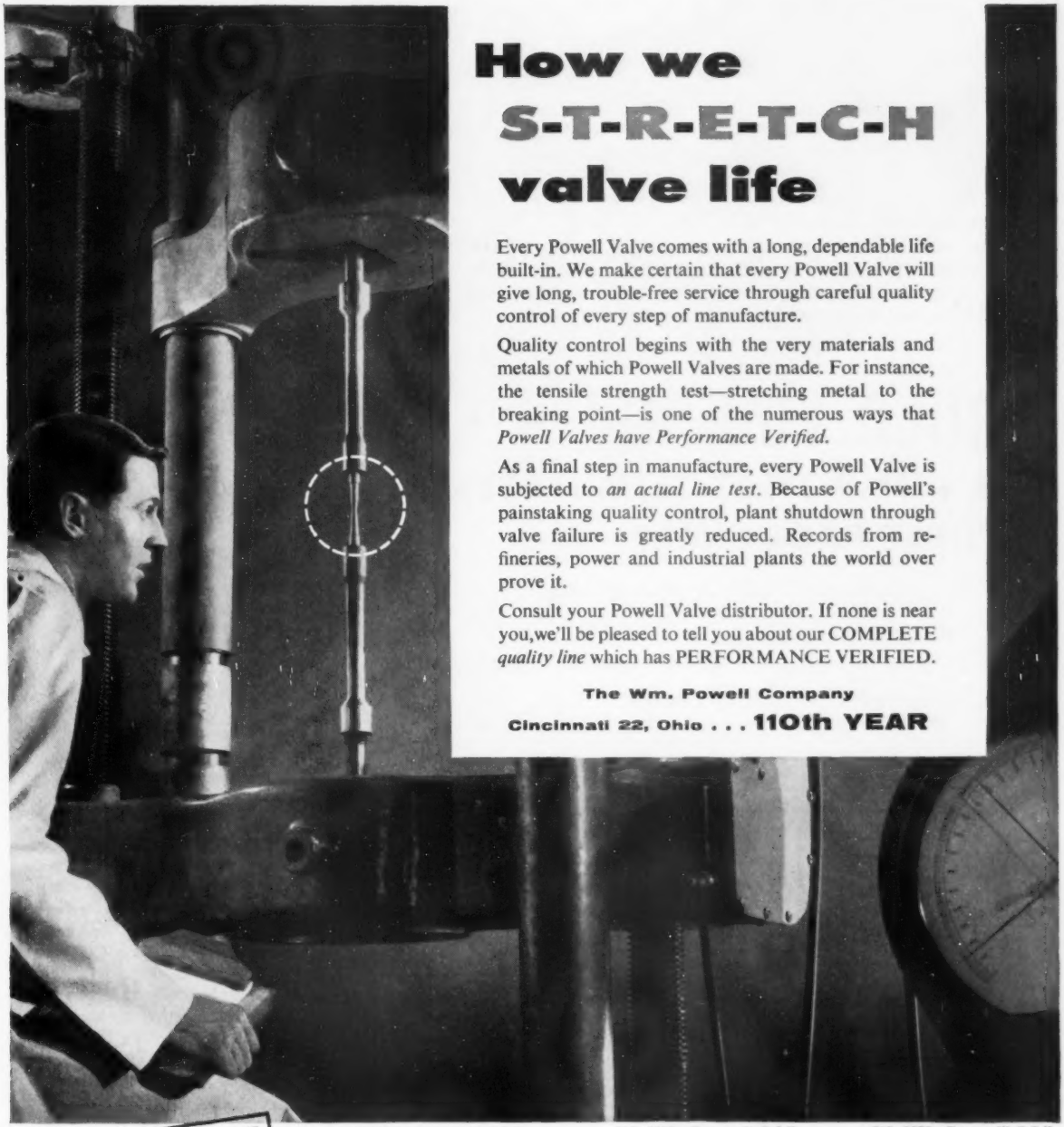
Write today for details and prices on the gauge best suited to your needs . . . you'll find it in the "Visible" Line.

SQUIBB TAYLOR

INCORPORATED

1213 S. AKARD, DALLAS 2545 SUMMER, MEMPHIS

MEEDER EQUIPT. CO., 1745 N. EASTERN, LOS ANGELES 32



How we S-T-R-E-T-C-H valve life

Every Powell Valve comes with a long, dependable life built-in. We make certain that every Powell Valve will give long, trouble-free service through careful quality control of every step of manufacture.

Quality control begins with the very materials and metals of which Powell Valves are made. For instance, the tensile strength test—stretching metal to the breaking point—is one of the numerous ways that *Powell Valves have Performance Verified.*

As a final step in manufacture, every Powell Valve is subjected to *an actual line test.* Because of Powell's painstaking quality control, plant shutdown through valve failure is greatly reduced. Records from refineries, power and industrial plants the world over prove it.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our COMPLETE *quality line* which has PERFORMANCE VERIFIED.

The Wm. Powell Company

Cincinnati 22, Ohio . . . 110th YEAR

PERFORMANCE
PV
VERIFIED

FIG. 8150—Bronze "L.P.G." Globe Valve For 400 Pounds W.O.G. Underwriter Approved.

FIG. 8158—Bronze "L.P.G." Horizontal Lift Check Valve For 400 Pounds W.O.G. Underwriter Approved.

FIG. 8375—Bronze "L.P.G." Gate Valve For 400 Pounds W.O.G.

POWELL VALVES

BRONZE, IRON, STEEL AND CORROSION RESISTANT VALVES.

terrupt day-to-day operations. It took 12 months to make the plant the most modern of its kind."

Plant efficiency

A good indication of the increase in plant efficiency is the rate of filling bottled gas cylinders. The plant has experienced a 40% gain in the rate of filling with no increase in man-hours! Other benefits of the modernization are greater safety, increased dependability and flexibility . . . all of which afford improved customer service.

The Wyandanch plant is also equipped with its own standby electric generating equipment. With generators on instant call, the plant can deliver dependable L. P. gas during heavy sleet storms, hurricanes and other severe "electric killing" weather.

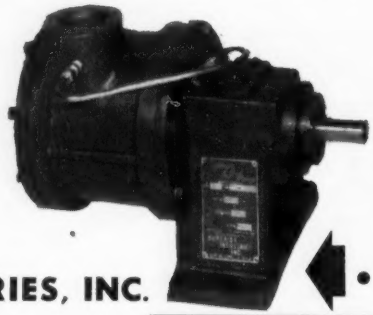
The Wyandanch bulk plant, with 95,000-gal. storage capacity and occupying a four-acre site, is a complete facility serving 25,000 industrial, commercial and residential customers in central and western Long Island. In addition, Conservative Gas serves its customers through complete plants at New Hyde Park and Riverhead, Long Island; and, Walden, (Orange county) New York. National Propane's second division, Lehigh Bottled Gas, operates seven plants in New England. National's newest division is Great Plains gas division (formerly the Shell Oil Co.'s Shellane operation), which covers nine mid-western states. ■

WOULD YOU BUY . . . .

A PUMP THAT ELIMINATES THESE PROBLEMS?

1. *Pump Replacement* (because of metal wear);
2. *The Need for Spare Pumps* (freeing this capital for other uses);
3. *Costly Delays Due to Pump Failures* (just when you need them the most);
4. *Noise and Inefficiency* (against differential pressures);
5. *Wearing Out Truck Motor* (trying to make the pump deliver good gallonage);
6. *Failure to Fill Bottles and Cylinders Quickly* (because of pressure differential build-up);
7. *Inability to Produce 30 G.P.M. of Butane Against Propane* (without bleeding off higher pressures).

Save TIME and MONEY . . GET A *Superior* **L P G PRECISION ROTARY PUMP**



Write for Descriptive Folder and Name of Nearest Distributor

SUPERIOR INDUSTRIES, INC.
1014 Pere Marquette Bldg.
New Orleans 12, La.

INQUIRIES INVITED FROM DISTRIBUTORS

Have you checked hot water needs of supermarkets?

A fresh, and relatively unexplored territory for the sale of modern automatic storage water heaters using L. P. gas is found in the mushrooming growth of new supermarkets as well as in the modernization of existing stores that are off gas lines.

Supermarkets don't need hot water just for employees to wash their hands. Sanitizing and degreasing meat pans, mopping floors, cleaning produce tables, refrigerators, and even garbage cans, takes hot water.

These points were driven home for Durant & McAlpine Plumbing & Heating Co., Detroit, when the company sold and installed a modern two-temperature Ruud Sanimaster gas water heater in the basement of the Food Town Supermarket in Detroit.

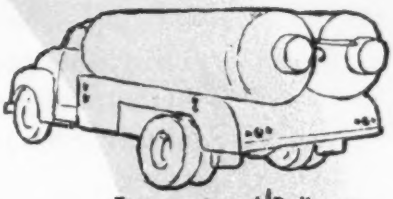
The new Sanimaster, replacing an old 86-gal. heater, cut the market's water heating bill by two-thirds. Food Town found the 180° water excellent for dissolving grease in many cleaning operations, while the 140° water from the same efficiently provided hot water for washing hands, vegetables, and for other general purpose operations.

There are 70 words in the ten commandments, 68 in the Lord's Prayer, and 26,900 in the government directive regulating the price of cabbage.

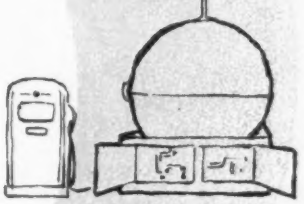
a step ahead of the industry

in

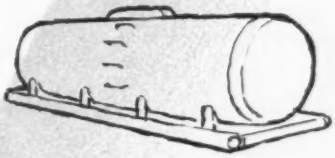
EXPERIENCE,
KNOW HOW,
MATERIALS, EQUIPMENT
AND SERVICE!



Transport and Delivery



Dispensers



Storage and System

The reputation of Dal-Worth tanks for top design, construction and job suitability and our standing in the industry we serve is proof-positive we do have the design knowledge and construction skills necessary to put the right tank on the job. Whatever your needs in LP-GAS and ANHYDROUS AMMONIA TANKS... transports... storage... delivery... system... you'll be serving yourself best by consulting with Dal-Worth. If you have a special problem, chances are part of the answer to that problem is already on our records and our engineers can work out the rest of the right answer to that problem and do it at lower cost.

If you haven't already received it, send for your latest catalog describing the complete Dal-Worth tank line. Just mail us the coupon attached to your letterhead.

DAL-WORTH TANK COMPANY

East Highway 80 P. O. Box 818
Grand Prairie, Texas

DAL-WORTH TANK COMPANY
BOX 818, GRAND PRAIRIE, TEXAS

Gentlemen:
Please send us your latest catalog of Dal-Worth tanks.

Company_____
Att'n:_____ Title_____
Address_____
City_____ State_____

BPN NEWS

AGA, Colgate-Palmolive join in $100,000 contest

To promote home laundry equipment and the new detergent, "AD," the American Gas Association and Colgate-Palmolive are sponsoring a nationwide jingle contest, which began Feb. 1 and will end March 31.

National prizes will include 100 complete New Freedom Gas laundries. Additional laundries will be given away over NBC-TV's "Feather Your Nest" program. Participating cabinet and gas appliance manufacturers selected by Colgate are underwriting the cost of the prizes. Each complete laundry will include a Bendix gas Duomatic washer - dryer, a Ruud Alcoa alloy Duo-Temp automatic water heater, and Youngstown Kitchens' sink and cabinets.

Colgate is publicizing this all-gas laundry contest with $200,000 worth of television time. Contest banners, shelf talkers, and entry blanks are being used to promote the jingle contest along with national TV and local newspaper advertising.

Additional information on the contest is available from AGA headquarters, 420 Lexington Ave., New York 17.

Janis Carter, star of the "Feather Your Nest" TV program, points out one of the 100 Ruud Alcoa alloy Duo-Temp automatic gas water heaters to be given away as part of a complete laundry prize in the AGA-Colgate jingle contest.

Kansas drivers represent 30 accident-free years

Better than 30 years of accident-free driving are represented in the three prize winners in the Kansas LPGA truck operator safety award contest.

First prize went to Walter Larson, Butane Gas Delivery Co., Pauline, Kan., with 3805 safe driving days to his credit. Second prize was awarded Walter Will, Humburg Co. Inc., Bazine, with 3787 safe driving days. Perry Van Osdol, Humburg Co. Inc., Russell, took third prize with 3784 safe driving days.

Safety council revises accident prevention manual

The third edition of the National Safety Council's "Accident Prevention Manual for Industrial Operations" has just been published.

This new and expanded edition, which is designed as the basic text for the safety man's shelf, includes all the information needed to organize a comprehensive safety program and keep it going. In addition, there are many chapters covering the specific

SQS

SERVICE • QUALITY • SATISFACTION

Capacity Loads at Minimum Overhead with a Pasley Single or Twin Barrel Custom-Built Propane Truck Tank

TWIN BARREL

A custom - built, well - engineered, popular Twin Barrel that can be furnished in any capacity. Thousands of propane users are being serviced by this type Pasley unit.

TRANSPORTS

Maximum payload is possible in a Pasley-designed single or twin barrel Transport. Unit is engineered and constructed so load can be easily shifted for different type tractors.

SINGLE BARREL

The 1200 single, for one fuel operation, meets all requirements. Pasley-designed singles can be furnished in any capacity.

Send Us Your Specifications and Requirements. We Will Submit Quotations.

•

Complete Modern Shop Facilities for Mounting and Testing All Pumping, Metering and Proprane Handling Equipment.

TWIN BARREL

TRANSPORT

SINGLE BARREL

"EVERYTHING IN LPG AND ANHYDROUS AMMONIA"

The Pasley Mfg. & Dist. Co.

601 East 11th Street • Kansas City, Mo. • Tel. Victor 2369

From the makers of famous Universal Gas Ranges . . .

the first really new home heater in 20 years!

So revolutionary it guarantees constant floor-to-ceiling comfort at all times . . . just like costly central heating!

No more customer complaints about cold floors and burning hot ceilings. Never another nasty word about drafty-off-and-on heat blasts. The new Universal *Constant Comfort* Gas Heater brings the most modern central heating principle of *constant heat circulation* to "space heater" homes. Automatically maintains even temperatures throughout the rooms at all times. Yet it costs *less* than some ordinary "space heaters" and requires no extra installation.

New sales appeal in every new feature!

Never in home heating history has there been a heater with so many features customers have long hungered for. Fiberglas insulated cabinet, always cool and safe to touch. Beautiful new space-saving design. Complete air filter system—and many more that make the newest "space heater" you've seen old-fashioned.

Rush the coupon for details today!

National advertising is all set for the early Fall selling season. The replacement market alone will be tremendous *plus* fast-growing new demand for use in motels, house trailers, recreation rooms and hundreds of other locations. You can't afford to miss a moment of it. So act *now*.

the new *Universal*

CONSTANT COMFORT GAS HEATER

for LP or city gas

Never before a **GUARANTEE** like this!

Cribben and Sexton Company guarantees the Universal Constant Comfort Gas Heater (when used in proper size for space to be heated) will out-perform any heater now sold in maintaining constantly comfortable temperatures from floor to ceiling.

Products of **Cribben & Sexton**

Universal Gas Ranges

Universal Automatic Gas Clothes Dryers

Universal Consum-all Gas Incinerators

Cribben & Sexton Co. 700 N. Sacramento Blvd., Chicago 12, Ill.

Gentlemen: Please rush complete information about the special money-saving advantages of placing my Universal Constant Comfort Gas Heater order now.

your name_____

firm name_____

street address_____

city_____ zone_____ state_____

TURN TO VIKING

THE ANSWER
TO YOUR LP-GAS
PUMPING PROBLEMS

MORE and more are finding the Viking line of bottle filling, truck-taxi-bus fueling and small bulk transfer pumps of 10, 20, and 30 GPM just the answer to their needs.

All three sizes are direct connected to 1750 RPM motors — come equipped with vapor pressure safety valve and safety bypass valve — are built to require no lubrication of the pump at any time — include O-ring head gasket and simple dry-liquid type mechanical seal for non-leak operations.

You, too, will find these pumps the answer to your problems. For more information on these models, as well as the complete line of Viking LP-gas pumps, ask for catalog Hb today.

VIKING PUMP COMPANY
Cedar Falls, Iowa, U.S.A. In Canada, it's "ROTO-KING" Pumps

Here's why you can get results
from B-P News Classified Ads

Your classified ad in B-P News will be seen in 9,013 different LPG plants . . . the *only* complete coverage of your major market in the LPG industry.

Best evidence of results is the fact that for 17 consecutive years, advertisers have placed more advertising in B-P News than in any other LPG media.

Deadline for copy is the 5th of every month preceding publication month.

BUTANE-PROPANE News
198 South Alvarado St., Los Angeles 57

types of hazards found in most industrial operations.

Additional information on the 1341-page manual is available from the National Safety Council, 425 N. Michigan Ave., Chicago 11.

NH_3 plant site selected in Washington by Phillips

Phillips Pacific Chemical, owned jointly by Phillips Petroleum Co. and Pacific Northwest Pipeline Corp., has purchased a 200-acre site in the Tri-Cities area of southeastern Washington where it will begin construction of an ammonia plant this spring.

The plant, located approximately seven miles southeast of Kennewick on the west bank of the Columbia river near Finley, is scheduled for completion late in 1956. Daily production capacity will be 200 tons of anhydrous ammonia. Pacific Northwest Pipeline will supply natural gas to be used as a raw material.

Phillips Chemical Co., a wholly owned subsidiary of Phillips Petroleum, will operate the plant. Marketing will be handled by the parent company. Sales offices serving the Intermountain, Inland Empire, and Pacific Northwest regions are located in Spokane and Salt Lake City.

The plant is reportedly the first new industry in the Pacific Northwest to result from the availability of natural gas.

Heat loss guide published by boiler institute

The Institute of Boiler and Radiator Manufacturers has issued a new I-B-R Guide designed to answer all questions and provide complete "show-how" information on accurate circulation of residential heat losses.

The new heat loss calculation guide supplements previous I-B-R installations guides.

Additional information on the guide is available from IBRM at 608 Fifth Ave., New York 20.

L. P. gas comes through in Louisiana emergency

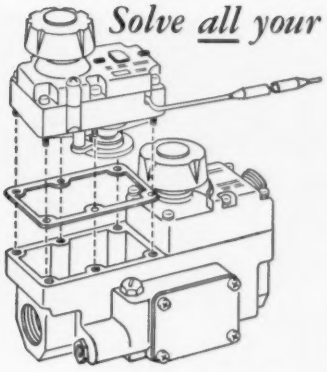
New friends were won for the L. P. gas industry in January when General Gas Corp. rushed its disaster plan into operation when a rupture in two 20-in. mains halted natural gas service to an estimated 90% of Baton Rouge, La.

With temperatures at near-freezing levels at the time of the natural gas service failure, C. C. Thompson, Baton Rouge district manager for General Gas, began delivering emergency supplies of L. P. gas and small auxiliary appliances to hospitals, res-

Solve all your room and wall heater control problems with

Honeywell Adatrol!*

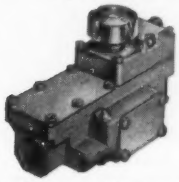
the gas cock Pilotstat with add-on thermostat



Here's how the add-on thermostat fits into the Pilotstat

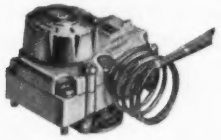
- **Fits all gas room and wall heaters**
- **No more adapter kit problems**
- **No more costly stocking problems**

The Honeywell Pilotstat



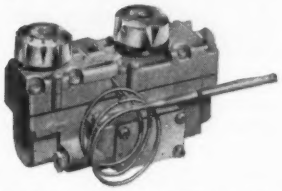
C592 Pilotstat. This new Honeywell Pilotstat fits any gas room heater and wall furnace. It features a 100% safety shut-off in case of pilot or flame failure. It is available with or without pilot gas filter, (no external filters necessary)—and will operate on all gases. Specifying it on all your heaters insures your customer simple economical addition of a thermostat when desired.

Plus this add-on thermostat

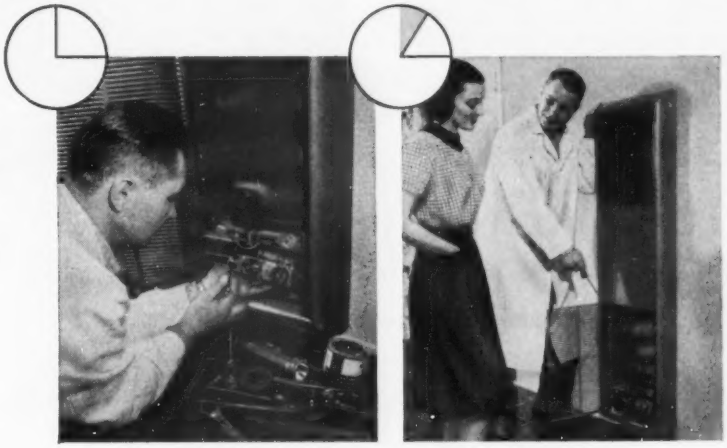


T5000 Adatrol thermostat. The new Honeywell Adatrol thermostat is a high-quality, self-contained, snap-action thermostat available with or without a high-low bypass. You can add it to the Pilotstat in less than 5 minutes. Just remove 6 screws and a plate from the Pilotstat—then fit the Adatrol thermostat in and replace the 6 screws. It's as simple as that!

Equals the Honeywell Adatrol!



V5153 Adatrol—combination Pilotstat-thermostat. A compact, high-precision, Pilotstat-thermostat unit that fits all gas room heaters and wall furnaces. Can be serviced in the field, without removing piping. Cut installation, stocking, handling costs by standardizing of this efficient unit. Specify the V5153 for all your *thermostat* equipped heaters.



Installation time, based on actual tests, can be as short as 5 minutes.

Simplifies stocking, cuts down on service, saves time, saves effort, saves money

NOW YOU can make an on-the-job addition of a thermostat any time your customers want it—without worrying about costly adaptations or re-workings. For when you use the Honeywell Pilotstat, and the Honeywell Adatrol thermostat —you need stock only two control items to fit all your gas room heaters and wall furnaces.

Think of what this compact Pilotstat-thermostat combination means in terms of savings! No longer do you need to stock complicated adapter kits and parts that get lost, depreciated, and become broken lots. No longer do your servicemen need to spend costly hours tinkering with make-shift connections.

All you stock is the C592 Pilotstat and T5000 Adatrol thermostat, which you can buy separately and put together in the field—or the V5153 *Adatrol* combination Pilotstat-thermostat, which comes already assembled from the factory.

So, start making your room heater and wall furnace business pay bigger profits! Call your local Honeywell office and order the Adatrol today!

For complete information on the new Honeywell Adatrol, or on any of the complete line of Honeywell Controls, just write to Honeywell, Dept. BN-3-31, Minneapolis 8, Minnesota.

MINNEAPOLIS **Honeywell**

112 offices across the nation

First in Controls

* *Trademark*

taurants and other public facilities for water heating and cooking purposes. Hundreds of utility company employees, plumbers, police, firemen and others cooperated during the emergency program.

A banner headline in the Baton Rouge *State-Times* on the day of the break in the twin mains reported that "Chilled City Waits for Gas." An accompanying box with the head, "Emergency Gas Makes Edition Possible Today," explained the role of General Gas in meeting press schedules. It said:

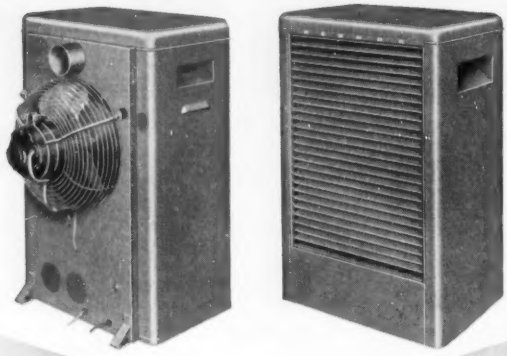
"Publication of the *State-Times* today was made possible by the use of butane gas provided on an emergency basis by General Gas Corp., which, within a half hour of being called, was unloading a tank of butane gas at the rear of the *State-Times* and *Morning Advocate* building. . . .

"When natural gas went off, the seven-ton metal pot which is used for casting the press plates cooled. Publication is not possible without the use of this pot. . . .

"General Gas sent a truck with a tank and crew and by mid-morning the burners were being operated in the huge pot."

Just before the Geo. D. Roper Corp., Rockford, Ill., moved into its new service building, Tom Reynolds (left), manager of the service department, inspected the lighting with Lloyd Ward, who served as engineer in charge of construction. The new building is part of Roper's accelerated field service training program.

NEW FlexiTemp design adds 4 powerful sales features to the Reznor room heater



THESE NEW FEATURES

- automatic fan speed selector adjusts air volume to seasonal heating requirements
- time modulating thermostat adjusts timing of heating cycles to match mild and severe weather conditions
- whisper-quiet fan operation for gentle, never disturbing air circulation
- clean, streamlined rear appearance with fan mounted directly to fan guard and all controls in one convenient grouping **inside** the cabinet

these Reznor room heater features mean central heating comfort and efficiency

- big, quiet fan keeps room air in gentle circulation
- adjustable vertical and horizontal louvers direct the heat where it's needed—eliminate hot and cold spots
- wall thermostat gives precise, automatic temperature control
- summer fan switch position allows cooling air circulation during hot weather
- compact design and conservative styling blend with any room setting

REZNOR THE WORLD'S LARGEST-SELLING GAS UNIT HEATERS

Reznor Manufacturing Co., 4 Union St., Mercer, Pa.

Gas institute names Martin Elliott director

Dr. Martin A. Elliott, research professor at Illinois Institute of Technology, has been appointed director of the Institute of Gas Technology in Chicago. He assumed the directorship of the institute on Feb. 1.

Dr. Elliott, who succeeds Capt. E. S. Pettyjohn, is a gas engineer who has been a professorial staff member of Illinois Tech's mechanical engineering department since 1952.

Air conditioning schools launched by Janitrol

The first of a series of factory schools on Janitrol summer air conditioning got underway Feb. 20 in Columbus, Ohio, according to H. C. Gurney, sales manager of the Janitrol Heating and Air Conditioning division of Surface Combustion Corp.

Authorized Janitrol dealers and wholesaler representatives will have an opportunity to study air conditioning fundamentals, heat gain calcula-

high efficiency
low investment– Profit Getter...

TWIN BARREL UTILITY UNIT

MASTER-CRAFTED BY
COLUMBIAN
SINCE 1893

Hunting for a more profitable LP delivery unit? You can't miss with this new Columbian 1,500 water gallon capacity Twin Barrel Utility Unit. At a minimum investment you have top operational efficiency—all service accessories of full skirted units. Best of all the lower center of gravity of the twin tanks provides the better load distribution, better balance that pays off in longer truck life.

Extra strength and durability are assured by Columbian's 61 years of experience in master-crafting steel products. Fittings and accessories are engineered into the unit for maximum efficiency. The double door cabinet in the rear houses meter . . . valves are covered by open hoods . . . pump is mounted on channel hanger with direct-drive power take-off for quick transfer. Hose racks each side (optional) for 50′ lengths up to 1½″ diameter. Fully equipped with ICC lights and wiring.

TANKS MANIFOLDED ON LIQUID and VAPOR

This time saving convenience is illustrated above. It gives you all the advantages of being able to operate from one central location. In this compact installation you have the Neptune Print-O-Meter, the Hannay manually operated hose reel (capacity up to 150 feet), and manifolding system.

The sleek, low appearance, the individual twin barrel design tell your customers that this unit represents a modern, progressive LP GAS distributor.

CUSTOM-BUILT SEMI-TRAILER

Designed and built to solve your own transportation problems. Long-experienced engineers and craftsmen combine their experience with quality materials to provide you greatest strength with lightest weight for a payload that PAYS. Maximum Capacities to meet your state limitations.

INDUSTRIAL STEEL BUILDINGS

Sound, permanent, steel buildings, easily, inexpensively erected. Pictured is 30 by 50-ft. cylinder-filling house with 10-ft. sidewalls. Ideal as pump houses, warehouses, office buildings and showrooms. Write for 16-page catalog "The Magic of Steel" fully describing sizes and uses of Columbian Industrial Steel Buildings.

Write today for complete, illustrated literature!

COLUMBIAN Steel Tank Co.
P. O. BOX 4048-C KANSAS CITY, MO.

STEEL, Master-Crafted by Columbian . . . First for Lasting Strength

tions and installation and servicing procedures. They will work on operating equipment, including air-cooled units and a water-cooled unit complete with operating cooling tower. Accurate cost estimating and pricing to insure profit at competitive prices will be discussed.

Detailed instruction by Janitrol design and field engineers will include a study of the electrical and mechanical controls of Janitrol cooling equipment, and practice in purging and charging air-cooled systems.

Trouble shooting sessions will be held on equipment which has been deliberately made to function improperly. This will be accomplished by the use of an ingenious control board which enables the instructor to create conditions that will actuate the safety controls and cause a service problem.

Week-long schools will be held Monday through Friday of the weeks beginning March 5, March 19, April 16, April 30, and May 14.

A variety of Rockwell meter, valve, and other products will be produced in this recently purchased plant at Statesboro, Ga., according to Willard F. Rockwell Jr., president of Rockwell Manufacturing Co. The new 106,000 sq ft plant, bought from General Instrument Corp. of Elizabeth, N. J., is a one-story aluminum-sheathed steel-and-concrete structure, Rockwell's 17th.

Coleman Co. constructing Los Angeles facilities

A $400,000 warehouse and office building will be built by the Coleman Co. Inc. in Los Angeles. The company's main offices are in Wichita, Kan.

The new building, which will permit expansion of the Los Angeles sales branch, will have 34,500 sq ft of floor space area, including 3500 sq ft of air conditioned office space.

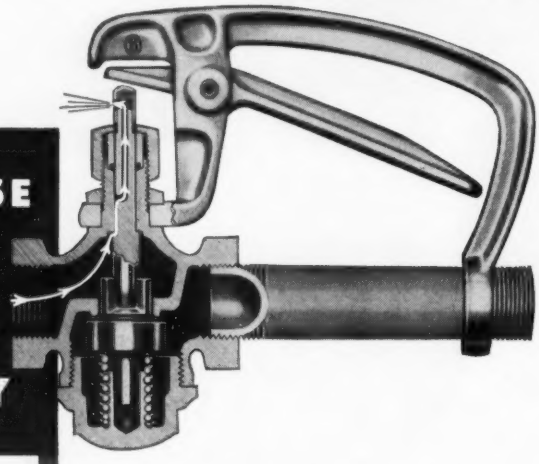
Other Coleman sales branches are in San Francisco, Wichita, and Phila-

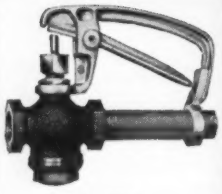
American-Standard sells via nationwide television

The impact of color TV spectaculars and the continuity of the popular "Today" and "Home" shows are combined in a new television merchandising plan for the plumbing and heating industry, according to announcement from the plumbing and heating division of American Radiator and Standard Sanitary Corp.

Kickoff date for the new TV program was Feb. 26, when American-Standard products were advertised in color on a 90-minute telecast. Fre-

DISPENSE LP-GAS SAFELY, QUICKLY





No. 8009
LPG QUICK-OPENING
GLOBE VALVE

No. 8001-LPG GLOBE VALVE

Safeguard Design Directs Hose Back Pressure Away from Operator

This Ohio Brass valve was designed to bleed off trapped LP-Gas slowly and harmlessly, in a direction *away* from the operator's hand.

The O-B No. 8009 has a special escape port in the stem. When the lever presses against the stem, no gas can escape. But after the LP-Gas is dispensed and the lever released, gas trapped in the line escapes through the port which is aimed away from the operator's hand.

Both the No. 8009 and its companion globe valve have been listed by Underwriters' Laboratories for use on LP-Gas. The No. 8009 comes in three sizes — ½, ¾ and 1-inch. The No. 8001 Globe and companion angle valves are available in a complete size range from ⅛ through 3 inches.

For additional information on Ohio Brass valves for LP-Gas service, send for Bulletin 1345-V.

Ohio Brass

MANSFIELD OHIO, U.S.A.

4689-V

We enjoy all the CITY COMFORTS with our HOLLY FURNACE

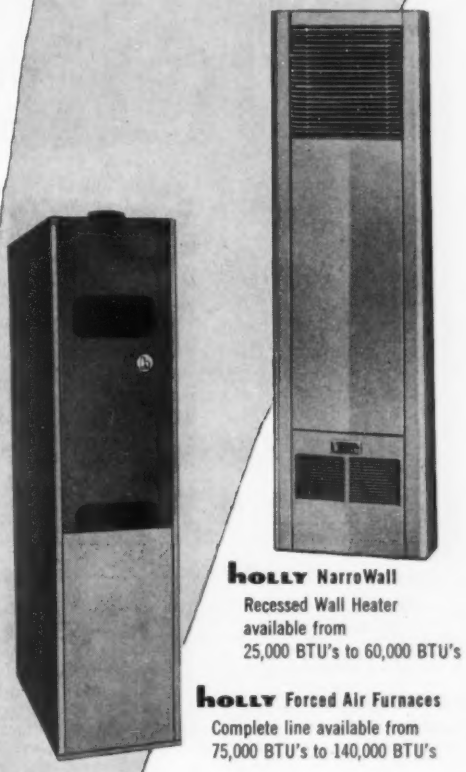
HOME HEATING MEANS VOLUME LPG SALES— BIGGER PROFITS FOR YOU

Sell a known quality line of heating equipment and give your customers the finest in heating comfort.

Build your profits — Holly offers space-saving design, service-free operation, and a guarantee recognized as the finest in the industry.

Learn more about the great Holly line of LP-Gas heating equipment — write today!

ENGINEERED HEATING HOLLY

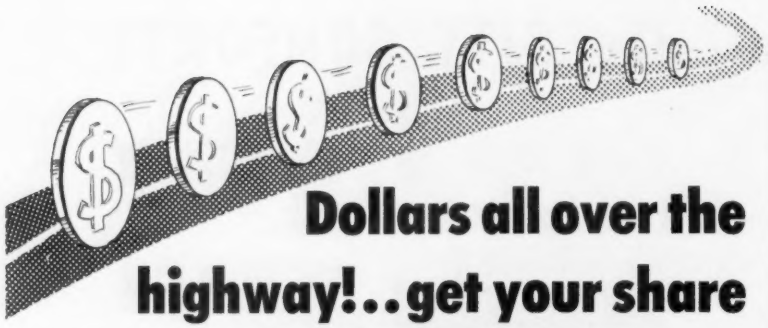


HOLLY NarroWall
Recessed Wall Heater
available from
25,000 BTU's to 60,000 BTU's

HOLLY Forced Air Furnaces
Complete line available from
75,000 BTU's to 140,000 BTU's

A.G.A. approved — Under central heating requirements

HOLLY MANUFACTURING COMPANY
917 South Arroyo Parkway • Pasadena 2, Calif.



Dollars all over the highway!..get your share with a TEXAN

THE COMPLETE PACKAGED LPG FILLING STATION

The Texas L.P.G. Service Station is fabricated in our plant, completely assembled and moved to you as one unit. Constructed in accordance with the A.S.M.E. Code. Complying with all rules and regulations for safe and economical operation.
If you are an L.P.G. Dealer and want to capture some of those highway dollars, then the "TEXAN" is the answer.
The "TEXAN" comes in all sizes to fit your need. For details, write, wire, phone us today for complete information.

Industrial MANUFACTURING CO. of TEXAS, INC.

POST OFFICE BOX 698
SWEETWATER, TEXAS
Phone 4862

WANTED: Technical Writer

We need a technically trained man under 35 for the editorial staff of BUTANE-PROPANE News. He should have a background of mechanical engineering and experience in LPG or Gas Operations — with emphasis on equipment. He should be able to write clearly and cleanly and have done some work in preparing reports. He should have an inquisitive mind and like to probe into the "Why" of things, and be able to explain to others what he has found out.

Experience in magazine or newspaper production as well as photography is desirable, but not essential.

Duties will include field trips to gather data for original articles.

Application by letter only. Send details to:

BUTANE-PROPANE News
198 SO. ALVARADO STREET • LOS ANGELES 57, CALIFORNIA

quent commercials are following on the Today and Home shows as well as on five additional color spectaculars timed to coincide with major product promotions.

Prominent Utah dealer dies in Salt Lake City

L. Marshall Haines, president of the Inland Gas Co., Salt Lake City, died Jan. 5. Mr. Haines, 51, had been prominent in L. P. gas activities and association work in Utah for many years.

Inland Gas Co. was founded in 1944 when Mr. Haines went to Salt Lake from active service in the air force. The company distributed LPG over a large portion of northern Utah.

Mr. Haines was formerly employed by the Standard Oil Co. of California in San Francisco and Long Beach, Calif., and was later transferred to its Billings, Mont., office.

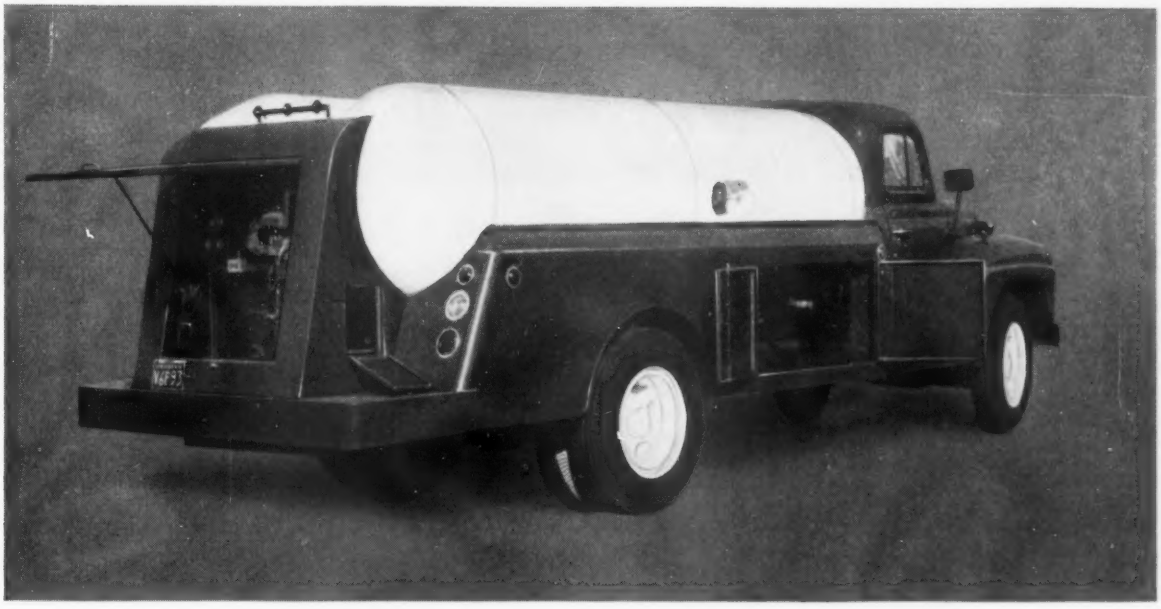
Canadian army has own L. P. gas school

The first L. P. gas school conducted exclusively for the Canadian army was held recently at the Canadian army base at Camp Borden, Ontario, 70 miles north of Toronto.

Sponsored by Superior Propane Ltd. and organized by W. G. Neill of Superior Propane, at the request of the Department of National Defense, Ottawa, the school provided instruction for Army Works Service officers and NCOs, fire prevention officers, and Army Service Corps NCO's from points as distant as the Yukon and Nova Scotia.

The syllabus included lectures on the sources and characteristics of propane, industry standards and government regulations, and venting of appliances, given by Mr. Neill, who also conducted a live demonstration on fire protection to prove that propane gas, properly handled in the proper equipment and with a knowledge of its characteristics, presents no great hazard. Fires were lighted under standard 100-lb cylinders and a 500-gal. tank, both filled with propane, to show the performance of relief valves and methods of controlling the fire. Cylinders were knocked over to show the effect of liquid propane spilling and becoming ignited. The camp's own fire department controlled all fires with ease.

Other instructors, drawn from LPG equipment and appliance manufacturers in eastern Canada, described instruction and service of L. P. gas cylinders and bulk storage vessels, regulating equipment, de-



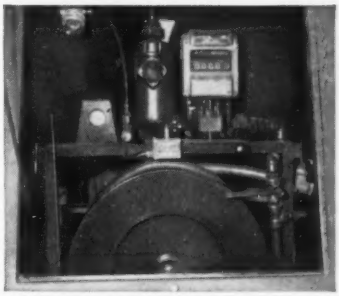
Hose Feeds straight out either side... another Downingtown plus value

Saves time. Saves sharp flexing and wear and tear on hose lines. Hose feeds straight from reel...through door on either side of rear cabinet...directly to customer's system. Electric reeling-in saves additional time at end of delivery. That's typical of the many plus values engineered into this sturdy, streamlined Downingtown LP-gas tank truck. Values usually found only on custom-built equipment—but available from Downingtown at a production price.

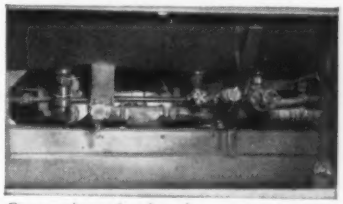
Downingtown design permits delivery across state lines... assures safety and minimum maintenance...enhances resale value of the unit. Meets all requirements of ICC MC-330 Specifications. Tanks comply with ASME Code for 250 pounds W.P.

Standard unit includes twin tanks, full skirting, operating cabinets, compact plumbing, quality hose and fittings, electric hose reel, other features—all packaged for quick transfer to a new chassis.

Twin-barrel design provides increased capacity with low center of gravity and road-hugging stability. Payload: 1406 gallons (Propane @ 60° F.). Water capacity: 1700 gallons. Maximum weight: 12,700 lb. including payload and full equipment, but not including chassis. Other sizes available. Send for Bulletin TT.



All controls are conveniently grouped in rear cabinet for orderly, speedy deliveries. Note hose reel lined up to pass hose directly through door at either side of cabinet.



Connections for loading tanks and for evacuating customer storage through meter, as seen through curbside cabinet.

DOWNINGTOWN IRON WORKS INC. Hackney

Downingtown Iron Works, Inc.

138 Wallace Ave., Downingtown, Pa.

Division of: Pressed Steel Tank Company—Milwaukee, Wis.—Manufacturer of Hackney Products

Sales Offices: 52 Vanderbilt Ave., Room 2099, New York 17 • 227 Hanna Bldg., Cleveland 15 • 936 W. Peachtree St., N.W., Room 112, Atlanta 3 • 208 S. LaSalle St., Room 790, Chicago 4 • 552 Roosevelt Bldg., Los Angeles 17 • 4550 Main St., Room 204, Kansas City 6, Mo. • 1487 S. 66th St., Milwaukee 14, Wis.

LP-GAS CONTAINERS FROM ONE POUND TO 30,000 GALLONS

Butane Propane

Carter

A name associated with the oil industry since Sisterville, West Virginia, in 1893 . . over 60 years of experience.

CARTER'S reputation for dependability, which has been earned during these years, is yours when you buy LP gas from Carter.

Call CARTER when you need Butane or Propane — for domestic or industrial purposes — and you call an unexcelled supplier, with unexcelled products.

THE CARTER OIL COMPANY
TULSA, OKLAHOMA

sign, installation and service on cooking equipment, water heaters, heating equipment, refrigeration units, automatic controls and internal combustion engines.

On the last day of the course, the students were taken on a conducted tour of Superior Propane's bulk storage plant at Maple. The course ended with an afternoon devoted to a panel discussion and forum with all speakers participating. All of the instructors on the course commented on and were gratified by the interested attention of the students in the course.

The use of L. P. gas at Canadian military bases has increased sharply in recent years, principally for cooking and catering and for some space heating applications. The army's new base at Camp Gagetown, New Brunswick—the first base in the country capable of training an entire division as a unit—uses the fuel for cooking in mess kitchens and is equipped with its own bulk storage plant.

Florida anhydrous ammonia plant in production

The first car of ammonia nitrate solutions from the Escambia Bay Chemical Corp. at Pensacola, Fla., was shipped on Jan. 1. Ammonia shipping by rail and truck commenced on Jan. 11.

Ground for the nitrogen fertilizer and ammonia plant was broken in April 1955 and in December production of ammonia was begun. Initial production rate was 75 tons a day. This is being increased rapidly to the 200-ton-per-day rated capacity.
delphia.

Suburban Gas acquires 12 plants in Colorado

Suburban Gas Service, Upland, Calif., has acquired the L. P. gas business and 12 plants operated by the Rocky Mountain Natural Gas Co., Denver. This brings a total of 46 plants into the Suburban group, and increases the number of retail customers to 28,000 for a gain of approximately 60% in 1955.

The distributing plants of Colorado Natural Gas Co. are located in Denver, Steamboat Springs, Granby, Eagle, Leadville, Dillon, Otis, Kremming, Akron, Brush, Idalia, and Prospect Valley. The plants of Suburban Gas Service are spread over California, Oregon, Washington, Idaho, and Arizona.

W. J. Robinson, Denver, will continue to serve as president of Rocky Mountain Natural Gas Co., and has been elected vice president and director of Suburban Gas Service.

Prior to his entry into the L. P.

Keep Up with L. P. gas Developments Each Month

BUTANE-PROPANE News

by subscribing to

198 SOUTH ALVARADO STREET, LOS ANGELES 57, CALIFORNIA

See Page 2 for Foreign Rates

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Name_____ Title_____

Firm_____

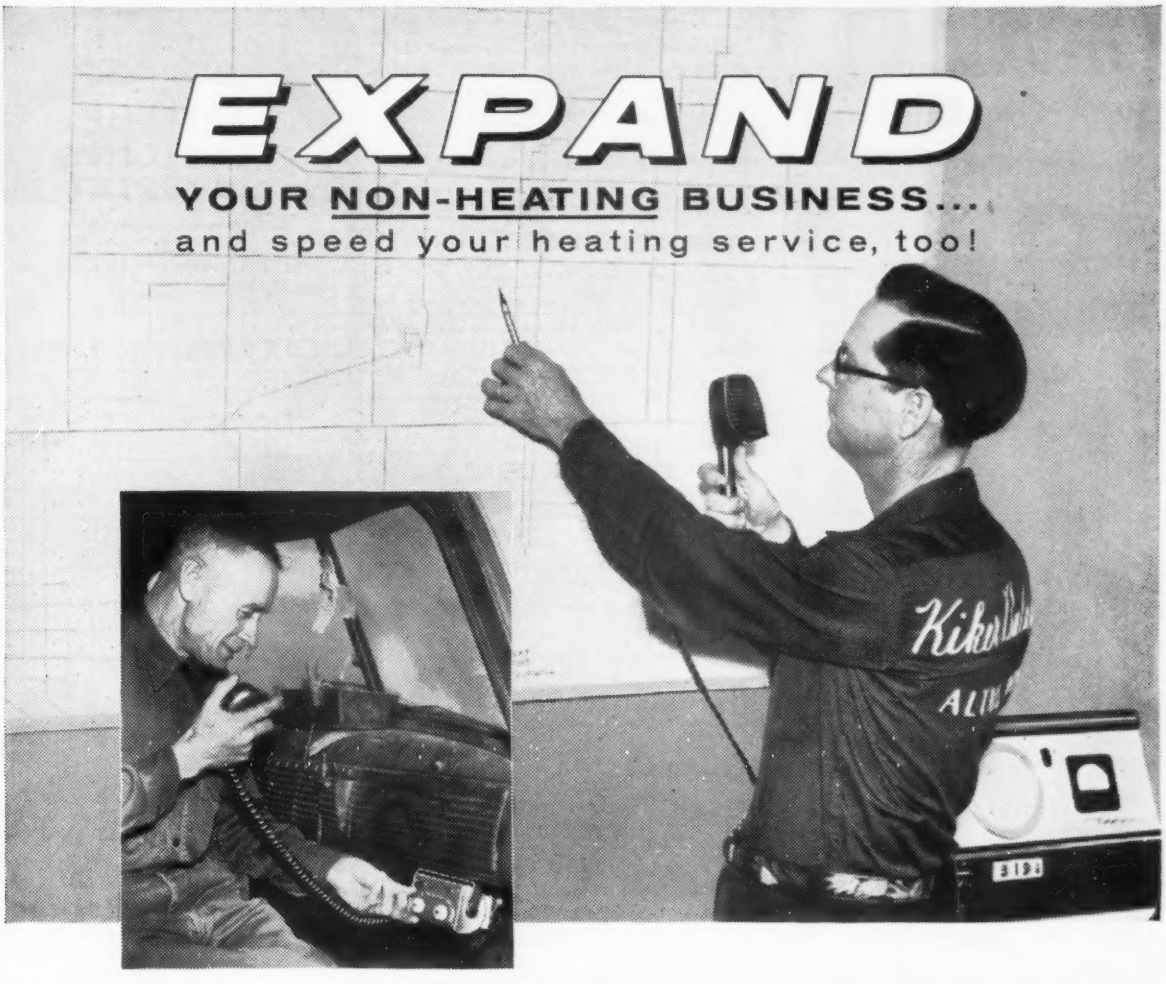
Street_____

City_____ Zone____ State_____

EXPAND

YOUR NON-HEATING BUSINESS...

and speed your heating service, too!



Kiker Butane Co. of Oklahoma reports: 30% of volume now used for non-heating purposes

Here's a ready-made market waiting to help smooth out your warm weather dips in gallonage. The amazing maintenance economies resulting from LPG carburetion are winning over new users every day, and progressive distributors are cashing in on motor fuel sales.

But predicted-use records won't work on these customers. You can't forecast when they'll run out of fuel, and when they do run dry—you've got to deliver fast. The *sure* way is with Motorola 2-way radio control of your trucks. Ersa Kiker of Altus, Oklahoma, says, "Our farm motor fuel business is growing fast—but we couldn't service it efficiently without our Motorola 2-way radios."

Radio insures your heating customers aren't kept waiting, either...and gives you a big competitive edge. Mr. Kiker points out that Motorola radio contact saves his delivery trucks many miles of needless traveling. His drivers like radio because now they don't get "stuck" with night calls. With radio in the trucks, they get the late calls and clean up these stops on the way in.

Tractors, trucks, drying kilns, asphalt batching plants—all are potential customers, if you are equipped to give lightning-fast delivery the Motorola 2-way radio way. Motorola radios are available on purchase, time payment, or lease (with or without equity). Get the full story. Write, phone or wire today.

MOTOROLA

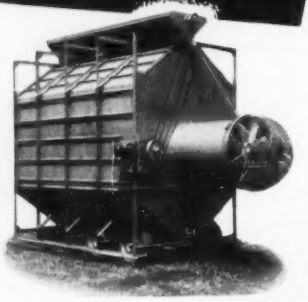
2-WAY RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
A SUBSIDIARY OF MOTOROLA, INC.
4501 AUGUSTA BOULEVARD • CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS LTD., TORONTO, CANADA

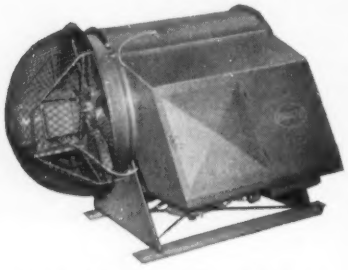
Motorola consistently supplies more mobile and portable radio than all others combined.
Proof of acceptance, experience and quality.
The only COMPLETE radio communications service—specialized engineering...product...customer service...parts...installation...maintenance...finance...lease.
"The best costs you less—specify Motorola."

To Boost Off-Season Gas Sales . . .

Sell Hartzell Crop Drying Equipment



The Hartzell gas-fired batch drying bin is used for drying all small grains.



The skid-mounted Hartzell gas drying unit is adaptable for a wide variety of drying applications.

There's a good profit for you in the original sale.

There's good volume in the gas to operate the dryer.

Mail the Coupon Below for Complete Details

HARTZELL *propeller fan co.*

Dept. B., Agricultural Division, Piqua, Ohio

Please send me details on how I can cash in on the growing interest in crop drying by selling and servicing Hartzell crop drying equipment.

Name_____

Company_____

Street_____

City_____ State_____

gas business as president of Rocky Mountain Natural Gas Co., Mr. Robinson served as vice president and general sales manager of Fruehof Trailer Co. and as president of Chicago-Denver Trucking Co. He is currently state director of the LPGA.

Willmar, Minn. plant opened by Pyrofax

Willmar, Minn., is the site of a new filling station of Pyrofax Gas Corp., a unit of Union Carbide & Carbon Corp. The new plant will serve nine Minnesota distributors, located in Olivia, Paynesville, New London, Sauk Centre, Dawson, Cokato, Glenwood, Benson, and St. Cloud.

J. H. Becker, who formerly was located at the company's South Deerfield, Mass., filling station, is superintendent of the new plant.

A new filling plant has also been opened in Danville, Ill., according to M. R. Walker of Walker Sales & Service, Pyrofax distributor. Also put in operation recently is the plant in Iron Mountain, Mich., where K & G Refrigeration Service Co. is the Pyrofax distributor.

Gas Heat Inc. buys Pendleton, Ore., operation

Liquefied Gas Co. of Pendleton, Ore., has been sold to Gas Heat Inc., Portland, in a transaction that covers the transfer of company assets and also the Dayton, Wash., branch of Liquefied Gas.

Kenneth Winkler of Gas Heat said the Dayton branch would be operated from the firm's Walla Walla office and that the Pendleton operation would be consolidated with the Pendleton Gas Heat Co.

E. L. Young pioneered the Liquefied Gas Co. about 15 years ago. The company serves 1800 customers in a five-county area. It has a local storage capacity of 62,000 gal.

Water heater shipments break previous record

Shipments of automatic gas water heaters soared to new records in 1955 while shipments of gas ranges made 1955 the best year since 1951, according to year-end figures released by GAMA.

Breaking the record set in 1950 by more than 385,000 units, water heaters reached a total of 2,750,300 last year. This is a 20.6% gain over the previous record year.

December shipments of gas ranges totaled 143,100, bringing the year's total to 2,244,900 units, a 11% rise over 1954's total shipments.

SEE *Griffiths* FIRST FOR

APPLIANCE SERVICING MATERIAL

Save time, trouble, and cost, with one reliable, experienced supplier.

CONVERSION PARTS

Complete range of sizes on all types of orifices and other conversion needs.

TOOLS

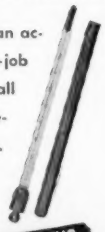
Everything you need to do the job quicker and better.

HANDLING EQUIPMENT

Simplify your delivery service with M/W Cylinder Trucks and YEATS Appliance Dollies.

TESTING THERMOMETERS

Provide an accurate on-the-job check for all servicing requirements.



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THE E. F. *Griffiths* COMPANY

346 EAST WALNUT LANE

PHILADELPHIA 44, PA.

You'll score high with this SINCLAIR team!

You're on the winning side when you deal with Sinclair because every tank-load of Sinclair LP-Gas puts you in scoring position with the five famous Sinclair extras – INTEGRITY, REPUTATION, QUALITY, PERFORMANCE and GOOD SERVICE. The result for you – more satisfied repeat customers and an increasingly profitable business.

It will pay you to study the winning points of Sinclair's top quality LP-Gas – high heating value; moisture and impurities removed – then, make a switch to Sinclair.

MEMBER national LP-GAS PROMOTIONAL program

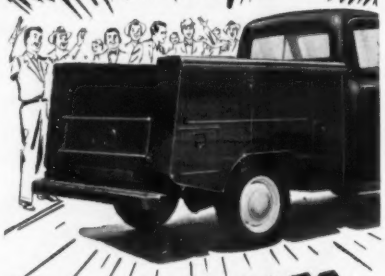
Sinclair Oil and Gas Company
Liquefied Petroleum Gas Sales Department
Sinclair Oil Building, Tulsa, Oklahoma

SINCLAIR
A Great Name in Oil

POWERS

Service-Master®

THE ALL-PURPOSE SERVICE BODY



ACCLAIMED BEST

BY BOTTLED GAS INSTALLATION AND SERVICE FIRMS

Sales records prove that Service-Master is used by more service men than any other body. Service-Master makes work easier . . . saves more time . . . *builds greater profits!*

EXTRA FEATURES!

"Freeze-free" hinges that can't bind • Concealed fenders to protect compartment walls • "Hi-Lo" floor for easier loading • "No-Bounce" bins to keep parts in place • "Puddle-Proof" cargo area . . . and many other "extras".

OUTLASTS SEVERAL CHASSIS Carried in stock in all 48 states by LOCAL Distributors!

FIND OUT FOR YOURSELF Prove to yourself that Service-Master gives you more for your money. Mail this coupon for complete details and price information today.

McCABE-POWERS AUTO BODY CO.

5900 N. BROADWAY • ST. LOUIS 15, MO.
625 CEDAR ST. • BERKELEY 10, CALIF.

Please send me complete details on **SERVICE-MASTER**

Name_____

Company_____

Address_____

City & State_____

JTS

BPN THE TRADE

Hamilton Rubber appoints G. C. Johnson sales manager

E. W. South, vice president in charge of sales of the Hamilton Rubber Manufacturing Corp., Trenton, N. J., has announced the appointment of George C. Johnson as sales manager. For the past five years he has served the company as promotional sales manager.

Mr. Johnson entered the rubber goods industry in 1919. He joined the Hamilton organization in 1950.

Executive appointments made by General Gas Corp.

Appointment of four gas industry veterans to new executive posts is announced by Rawlston D. Phillips, president of General Gas Corp., Baton Rouge, La., a major southern distributor of liquefied petroleum gas and LPG appliances.

Richard M. Mills, former president of Mills Gas and Appliance Co. Inc., Louisville, Ga., was elected vice president and general manager of General Gas Corp.'s eastern division, headquartered in Macon, Ga.

L. Hughes Browning, former vice president and general manager of Radiant Gas Service Inc., a subsidiary of Georgia Gas & Appliance Co. Inc., was named manager of operations for the firm's eastern division.

Martin F. Dryden Jr. was elected vice president and general manager of General Gas' western division headquartered in Baton Rouge, and Joseph Aron was appointed purchasing agent for the western division.

Mills Gas and Appliance Co., Inc., and Georgia Gas & Appliance Co., Inc., and the latter's wholly-owned subsidiaries became part of General Gas Corp. in a series of acquisitions during 1954. Those acquisitions increased General Gas' customers to more than 144,000 in five Southern states, Louisiana, Mississippi, Georgia, South Carolina and Alabama.

Another appointment is that of Joseph T. Jerome to become administrative assistant and purchasing agent of the eastern division.

WHITE RIVER
Has Special Service For
NEW DEALERS

Send your driver down to pick up your new White River Propane Truck Tank unit. We'll give him the first hand experience of a "check-out run" over our own retail gas route, thoroughly explain every feature, and show him, right on the job, how to operate it for maximum efficiency. Just another one of the PLUS services you get from WHITE RIVER. Write today for prices and specifications on the complete White River Line.

Convenient Finance Terms On Both Tanks and Trucks

THE WORLD'S FINEST PROPANE TRUCK TANKS

WHITE RIVER DISTRIBUTORS, Inc.
TELEPHONE 570 BATESVILLE, ARK.

SEE OUR AD IN THE CLASSIFIED SECTION

Leo Wilmeth joins Union Petroleum as sales manager

L. J. Wilmeth

Leo J. Wilmeth Jr. was recently appointed sales manager of the Union Petroleum Corp., of Tulsa, according to W. W. Nixon, president of the company. Mr. Wilmeth has had 10 years' experience with other companies specializing in L. P. gas products. His has handled production, transmission and distribution of L. P. gases.

In his new post Mr. Wilmeth will supervise the movement of all petroleum products handled by Union. Union Petroleum markets L. P. gas for domestic, refining and chemical uses in the Mid-Continent, Gulf Coast and southeastern areas.

37-year industry veteran retires from Hope Natural

Robert S. Grunnagle, a veteran sales-service representative in the propane-butane division of the Hope Natural Gas Co., Pittsburgh, Pa., retired in December 1955 after a service

NEW *Humphrey* RADIANTFIRE CIRCULATORS FOR 1956 FEATURE

"TOPTROL"

THE NEW FINGER-TIP TOP CONTROL

Cool... Convenient... Safe

A Great New Convenience for the User

A Wonderful New Sales Feature for You

TOPTROL is the most exciting new sales feature in the gas heater field! The **top-mounted** heat control that breaks the control barrier and provides conveniences of operation never before offered on this type of heater.

TOPTROL eliminates squatting and squinting to adjust gas valve or thermostatic control inside the heater. Now, for the first time, Mrs. Housewife can dial the heat she wants, from table-height, as easily as turning on a radio!

TOPTROL the NEW Humphrey feature that appeals to all buyers—that gives you a competitive sales advantage over all other brands—that's sure to increase your sales and profits on the Humphrey line.

TOPTROL is standard equipment on all 1956 Humphrey Radiantfire Circulators either manually or thermostatically controlled.

Write for free literature.

GENERAL GAS LIGHT COMPANY

KALAMAZOO, MICHIGAN

Humphrey **RADIANTFIRE CIRCULATORS WITH "TOPTROL"**

have you seen
Mutual's
new base?
It's the popular new unit that is building sales of Mutual equipment wherever it is demonstrated. This attractive — but rugged base —is the most versatile on the market today . . . because in a matter of minutes any Mutual furnace or heater can be changed from a portable (field type) to a stationary (bench type) unit by utilizing the new base.
Illustration shows how the base is used as foundation for Mutual's bench type plumbers furnace . . . known as the 2A. For more details write for a new Mutual Catalog.
Mutual
LIQUID GAS EQUIPMENT CO., INC.
17129 South Broadway, Gardena, Calif.

1956 weather forecast:
A HEAT WAVE
will sweep the country
as Martin Gas Heaters
bring sunshine warmth
to thousands of homes!
STOCK and SELL the COMPLETE LINE
Vented Space Heaters
8 models—15,000 BTU to 85,000 BTU
Vented Floor Furnaces
3 models—35,000 BTU to 70,000 BTU
Vented Wall Heaters*
5 models—25,000 BTU to 60,000 BTU
Unvented Space Heaters
23 models—10,000 BTU to 50,000 BTU
Every Martin Gas Heater is AGA approved for natural, liquefied and manufactured gases.
*Wall heaters approved under 1956 AGA requirements
Write your jobber or direct for complete catalog.
Manufactured by
MARTIN STAMPING & STOVE CO.
Huntsville, Ala. Over 50 years heater experience
AUTHORIZED DEALER
MARTIN
GAS HEATERS

record covering 37 years. He was a specialist in the use of propane for cutting steel with oxygen, having had much to do with the development of hydrocarbon cutting gas equipment, tips in particular.

Joel C. Adams has been named as successor.

Beacon appoints Roche manager of supply, distribution

E. M. Roche

Beacon Petroleum Co., Tulsa, Okla., has announced that Edward M. Roche will join Beacon as manager of supply, distribution.

Mr. Roche has 16 years experience in railway shipping and was formerly employed in Kansas City as assistant general freight agent for the Chicago Great Western Railway. He served five years as general agent for Great Western in Tulsa where he became acquainted with the shipping of L. P. Gas and other petroleum products.

At Beacon Petroleum, Mr. Roche will head the distribution organization and will be responsible for moving schedules of all products to the proper markets. He will handle Beacon shipments of natural gasoline, butane-propane, motor fuel and fuel oils.

Manchester Welding adds Al Ruhl to sales staff

Al Ruhl has joined the sales staff of Manchester Welding & Fabricating Co., Lynwood, Calif. He will travel in the western states.

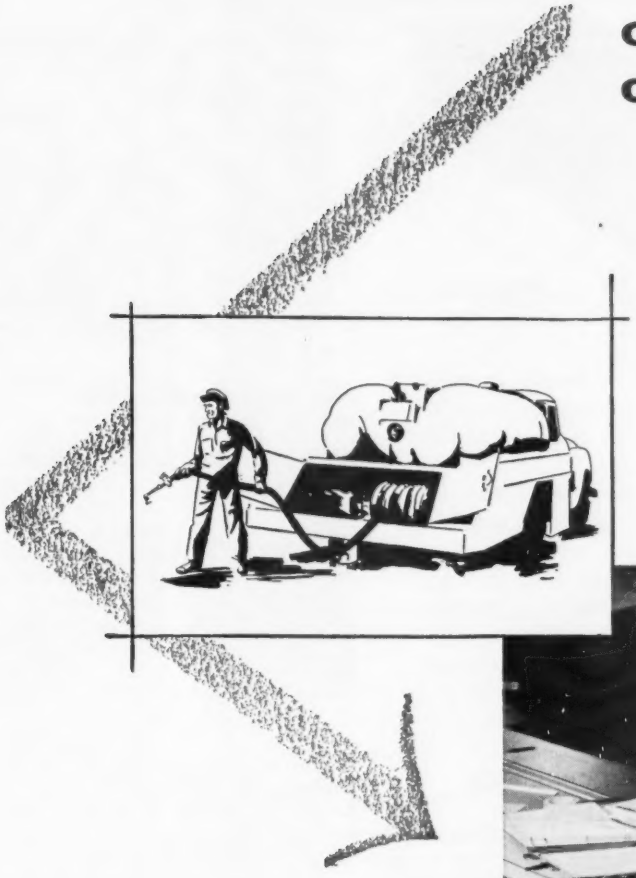
Mr. Ruhl comes to Manchester with previous experience in the L. P. gas industry and a thorough knowledge of both LPG motor fuel tanks and LPG weed burning equipment.

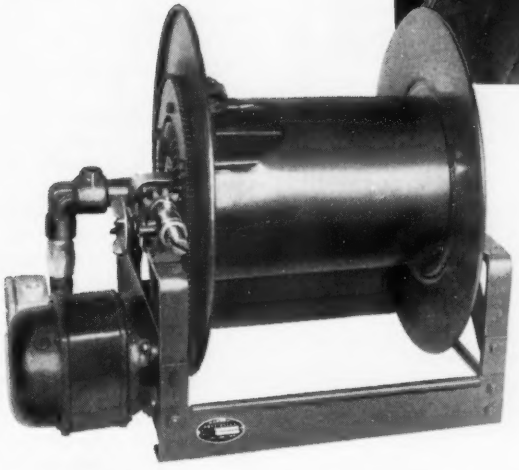
Twenty-one sales engineers assigned by Honeywell

Twenty-one new sales engineers have been added to the field sales force of Minneapolis-Honeywell Regulator Co.'s industrial division. They were assigned to 19 branch offices located in 18 U. S. cities and one Canadian city.

The new appointees include: William Bater and Robert W. O'Reilly, Philadelphia; David B. Beasley, Toronto; Walter E. Biewer and Robert E. Day, Los Angeles; Robert J. Byers, Milwaukee; A. P. Ciprari, International Division, New York; Alan

on the design board or in the field...





Superior performance in the field—that's what really counts where Hannay Reels are concerned. Design board expectations and developmental work must be justified in actual service.

Because Hannay Reels live up to all that is expected of them, *and more*, they have become the accepted standard of the LP-Gas industry.

You will find it profitable to put Hannay Reels to work for you. Be sure you *specify* and *get* Hannay.

Send for free catalog with complete specifications

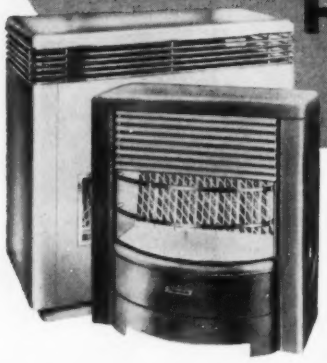
. . . Greatest Name in Hose Reels

HANNAY®

© 1956 C.B.H.&S., Inc.

CLIFFORD B. HANNAY & SON, INC., 336 WEST ST., WESTERLO, N.Y.

HERE'S A "SMOOTH" LINE OF HEATERS



Thermolaire

Thermolaire will increase your sales volume too, like it has for other Dealers. Because, Thermolaire Heaters satisfy your customer's desire for beauty, convenience and comfort. Thermolaire is a "smooth" line because its style, design and high efficiency break down customer sales resistance.

Soft, mellow copper-tone baked enamel finish harmonizes with other furnishings. Line includes vented or unvented circulators, radiant heaters and bathroom heaters. Chrome hearths, manual or automatic controls. Write for literature and prices.

BIRMINGHAM STOVE & RANGE COMPANY

Builders of Fine Stoves For Over 50 Years — Birmingham, Alabama, U.S.A.

KRUG HAND PUMPS - Often Copied - Never Duplicated

WHY LOSE 4% OF B-P FUEL?

KRUG B-P PUMPS

eliminate this loss and assure SAFE transfer of liquid petroleum fuel!

Venting tanks while filling not only costs money but is also dangerous. A Krug Pump is the proven and practical method of transferring B-P Gas for tractor, bottle and tank filling. PROFIT TWO WAYS — your customers need Krug Pumps for their own protection. You can use Krug Pumps in your own operation. Ask your supply house about Krug Hand Pumps and Krug Power Pumps, or write for complete information to:

"World's Largest Producers of L-P & B-P Hand Pumps"

D. H. KRUG COMPANY

Box BP 356, MADISON, SOUTH DAKOTA

NO COMPOUND COMPARES WITH

RECTORSEAL No. 2

For Cleanness
Light in color, Rectorseal does not stain hands, clothes, job site. Easily removed with lacquer thinner.

For Smoothness
Smooth as satin because it's finely ground and homogenized—always free of foreign matter. No lumpy ingredients to settle out.

For Elasticity Thin in container, Rectorseal No. 2 spreads smoothly over even fine threads—thickens in the joint to a plastic elasticity that positively seals against leaks, yet is easy to break-out. Meets Pamphlet No. 58 requirements. Never hardens—holds pressures up to 11,350 p.s.i.

For Economy Rectorseal No. 2 has no match. It actually costs less to use than other compounds—yet outperforms them all.

Write for a generous FREE SAMPLE

RECTORSEAL, Dept. A
2215 Commerce Street, Houston 2, Texas

RECTORSEAL # 2

MAKING THE L-P GAS INDUSTRY SAFER

L. Colter, Buffalo; John L. Dyer, Cincinnati; Merton H. Fischer, International Division, Minneapolis; Michael N. Francher, Syracuse, and Eugene D. Haugen, Seattle.

Also, Charles C. Hulsey, Columbia; Charles B. MacRae, Houston; Robert J. Owen, Cleveland; John B. Prouty, Columbus; Harvey F. Renee, Indianapolis; Bertram R. Robinson, Union; Russell, W. Skinner, Pittsburgh; Jack D. Stickley, Oklahoma City, and Richard E. Swenson, Twin City.

Jess Ward appointed new eastern Sel-Pac manager

J. B. Ward

George Postlewait, president of the Selwyn-Pacific Co., Los Angeles, announces that Jess B. Ward has been appointed Eastern sales manager with headquarters in New York City.

Mr. Ward has had an extensive career in the liquefied petroleum gas industry in Kentucky, having been employed first as a serviceman, then as a junior LPG inspector in Kentucky.

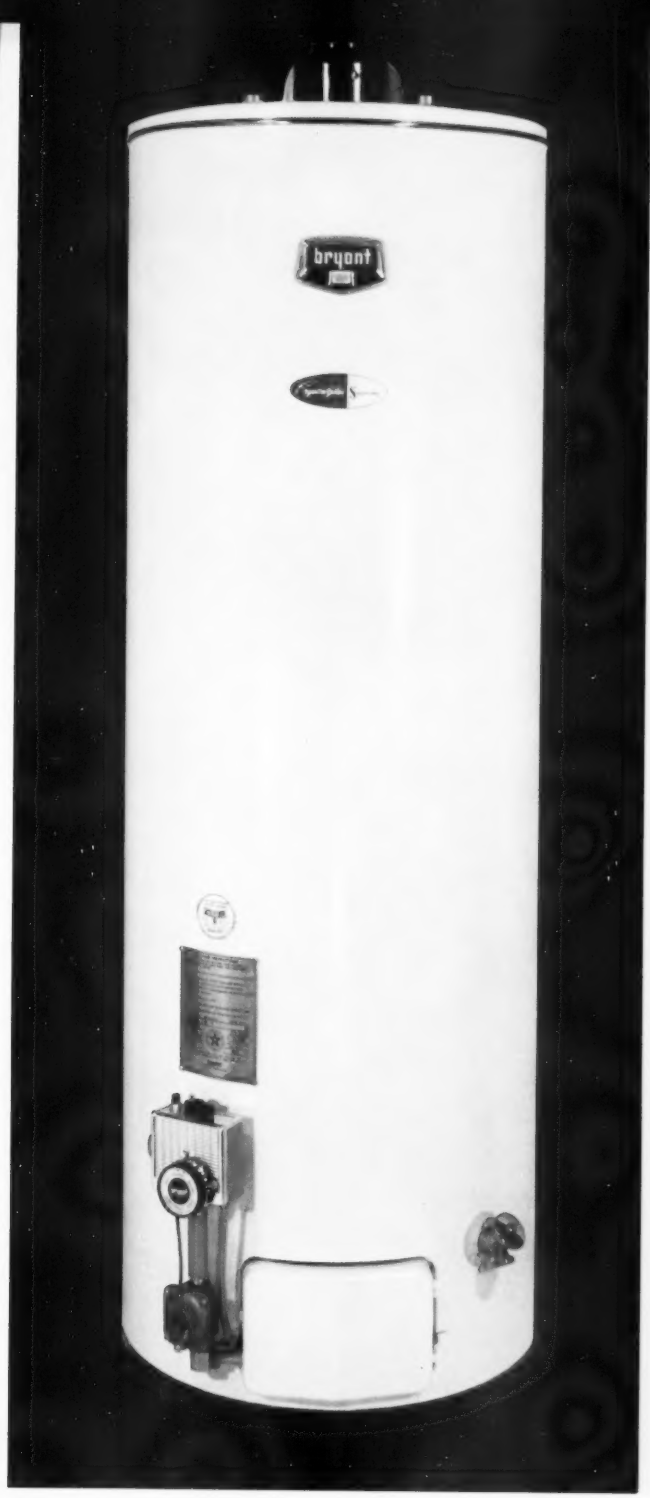
He attended the Southern Technical Institute at Chamblee, Ga., where he studied gas fuel technology and later returned to Kentucky where he served in the position of chief L. P. gas inspector in the state fire marshal's office.

Mr. Ward's past sales experience in commercial and domestic refrigeration and appliances dates back a good many years. He was instrumental in organizing and conducting the first state-wide L. P. gas service school in Kentucky. He was the recipient of the first scholorship to Southern Technical Institute, awarded jointly by the Kentucky Department of Insurance.

Horn is manager of natural gasoline purchases for Phillips

Phillips Petroleum Co. has announced the appointment of John Horn, formely technical advisor in Phillips natural gas department, as manager of natural gasoline purchases in the products supply division of the supply and transportation department.

In his new duties, Mr. Horn will be in charge of all natural gasoline purchases for the supply and transportation department. D. R. Reese handles L. P. gas purchases and R. B.



GROW BIGGER WITH **bryant**

and here's one way you can

GROW BIGGER WITH bryant

Sell the Finest Line of Water Heaters Built Today

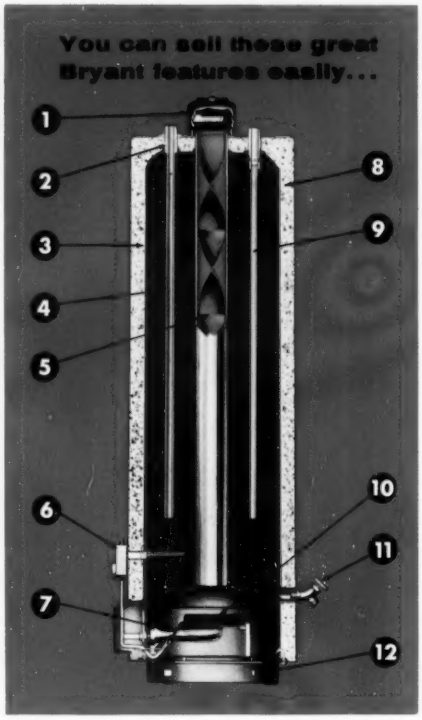
The Bryant Water Heater sells easily and quickly because these beautiful, efficient *Crystalglas* models give your customers:

- Bryant "Horizon-Heat" Burners that provide a faster hot water recovery rate.
- A size for every requirement.
- 100% safety thermostat on all models.
- Truly low-cost operation
  . . . and many other features (see right).

It's a Line Backed with Powerful Local Promotions

- A tremendous, sure-fire, complete dealer promotion.
- Complete sales promotion materials—newspaper ads, window display, store display, direct mail, etc.
- Personal assistance from your own Bryant, on-the-spot distributor.

Bryant is Growing Faster with the Finest Quality Line of Water Heaters Built. Get Full Details from Your Bryant Distributor, Today.



1. Draft Diverter—Bryant exclusive. Compact design.

2. Water Connection Fittings—Solid brass.

3. Heavy, Glass-lined Tank.

4. Dip-Tube—Introduces cold water at bottom of tank.

5. Center Flue—Equipped with Bryant "Twist-N-Turn" baffle.

6. Thermostat—Controls water temperature at desired point.

7. Pilot—Target-type for efficient operation.

8. Thick Glass Fiber Insulation.

9. Bryant Protect-O-Rod—Gives additional "stand-by" protection.

10. "Horizon-Heat" Burner—New, radial type to provide faster water heating.

11. Drain Faucet—At lowest point of tank. Solid brass for added protection.

12. Recessed Pedestal Base—Low in height; sturdy, one-piece construction.

and here are 8 MORE reasons why you'll GROW BIGGER WITH BRYANT

1. Your customers know and trust the name Bryant . . . famous for 47 years as the leading name in home comfort. That's why a Bryant is easier to sell.

2. From small home to mansion, or for store or factory, there's a Bryant to fit the budget and the need in gas or oil furnaces, boilers, air conditioners, space heaters, unit heaters, water heaters.

3. You build customer confidence when you install Bryant . . . the highest quality heating, cooling and water heating equipment made.

4. You profit more with Bryant because of the Bryant Business Development Program, the most complete program in the industry.

5. You get *sales building tools* that increase your sales and profits.

6. You have the help of a nearby Bryant distributor who gives you *complete engineering, sales and service help.*

7. You are backed up by *powerful national advertising* designed to help you.

8. You are given the most complete *co-op advertising to build sales in your own community* offered by any manufacturer in the industry.

Don't miss Bryant's big Water Heater Trade-In Promotion. It will get you the cream of the water heater business in your community. And get the full details of why it will pay you to grow bigger with Bryant. *For the name and address of your nearest Bryant distributor, write, Bryant, 48 Monument Circle, Indianapolis 4, Indiana.*

and GROW BIGGER with bryant

Holmes is in charge of refinery products purchases and exchanges. H. J. Horsch is manager of the products supply division and C. M. Kittrell is assistant to the manager.

A. O. Smith Permaglas names Hoelter manager, builder sales

L. H. Hoelter

The Permaglas division of the A. O. Smith Corp. has appointed L. H. Hoelter, Chicago, as manager of the builder sales department This is a newly created post.

The selection of Mr. Hoelter, who formerly was a Permaglas district manager in the Middle West, coincides with the current announcement of an expansion of the newly styled Permaglas heating and air conditioning lines for 1956.

Colacuori is sales supervisor, IHC truck product development

The appointment of Sal Colacuori to the newly created position of sales supervisor, motor truck product development, was announced by R. M. Buzard, manager of sales, motor truck division, International Harvester Co.

Mr. Colacuori, since 1948 general supervisor of motor truck sales engineering, has been succeeded in that assignment by N. L. Ginder, sales engineering consultant.

Warren Petroleum elects Brennan as board member

G. L. Brennan

G. L. Brennan, a vice president of Warren Petroleum Corp., Tulsa, has been elected a member of the board of directors. He will fill the vacancy resulting from the resignation of Howard E. Felt.

Mr. Brennan became vice president of the LP-Gas Division on Jan. 1, 1954, when Mr. Felt, vice president of that division and a director, announced he planned to retire from active service on March 1. Since his retirement Mr. Felt had continued to serve as a director until his resignation was accepted at a recent meeting of the board of directors.

Mr. Brennan is a native of North

METALBESTOS

cuts installation costs without cutting corners

Why waste time on makeshift fittings when Metalbestos can save far more in labor costs and assure a complaint-free job? This modern insulated gas venting travels light... couples gas-tight in seconds... includes new round short lengths and exclusive 90° adjustable elbows to handle any installation without job-site cutting. It's safe to save with Metalbestos — and you'll finish more jobs for good in fewer man-hours.

For the latest Metalbestos catalog, see your jobber or write Dept. M-3.

METALBESTOS DIVISION

Offices in Belmont and Glendale, Calif., Seattle, Denver, Dallas, Des Moines, Blue Springs, Mo., Minneapolis, Chicago, Atlanta, Akron, Louisville, Newark, Buffalo.

Stocked by principal jobbers in major cities. Factory warehouse in Atlanta, Dallas, Newark, Des Moines, Chicago, New Orleans, Akron.

For L. P. Bulk Storage Leading Firms Pick **NELSON**

There are over 250 SYSTEM NELSON bulk plants for the storage of LP Gas and Anhydrous Ammonia located in 25 states. Take advantage of our experience and get extra value and service on your next storage problem. Contact us for a meeting with an experienced storage engineer.

SYSTEM NELSON

EDWARD S. NELSON, Ltd.
Clarksdale, Mississippi

THE LEADING NAME IN THE BULK STORAGE FIELD!

New Propane

50 to 150 Hours on a 20-lb. Tank of Propane

Typical Users:
Contractors
Railroads
Municipalities
Mines

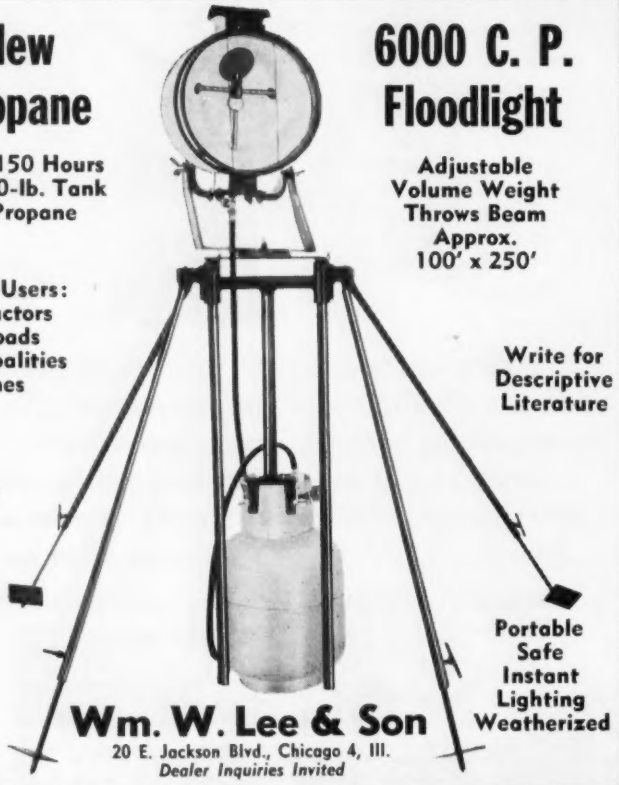
4' x 8' Telescopic Stand or Tank Bracket Mounted

6000 C. P. Floodlight

Adjustable Volume Weight Throws Beam Approx. 100' x 250'

Write for Descriptive Literature

Portable Safe Instant Lighting Weatherized



Wm. W. Lee & Son
20 E. Jackson Blvd., Chicago 4, Ill.
Dealer Inquiries Invited

Dakota and obtained his degree in mining engineering from the University of North Dakota. He joined the Warren organization late in 1941 as manager of the LP-Gas Division and Mr. Felt's assistant, after more than 12 years of experience in the industry. Last month marked Mr. Brennan's 27th year in that phase of the oil business.

Norge appoints western regional home economist

Edna Poyner

Miss Edna Poyner has been appointed Norge regional home economist covering six western states. Mrs. Jessie Cartwright, home service director, states that Miss Poyner will work with Norge distributor home service directors in California, Arizona, Montana, Idaho, Oregon and Washington.

For the past seven years Miss Poyner held field home economist positions with International Harvester Co. at San Francisco, Salt Lake City, and Denver.

Carlin Jr. is assistant sales manager of Acme Rubber

E. W. South, vice president in charge of sales, has announced the appointment of J. V. Carlin Jr. as assistant general sales manager of the Acme Rubber Manufacturing Co., Trenton, N. J. He will assist J. V. Carlin Sr., general sales manager.

After joining Acme's sales force in 1947, Mr. Carlin serviced the Philadelphia territory.

Mission Appliance heating has new sales manager

C. A. Miller has been appointed sales manager, heating and air conditioning, Mission Appliance Corp., according to an announcement made by Frank R. Osborne, vice president and general manager.

Joe Miller brings to the post 19 years of experience in the industry.

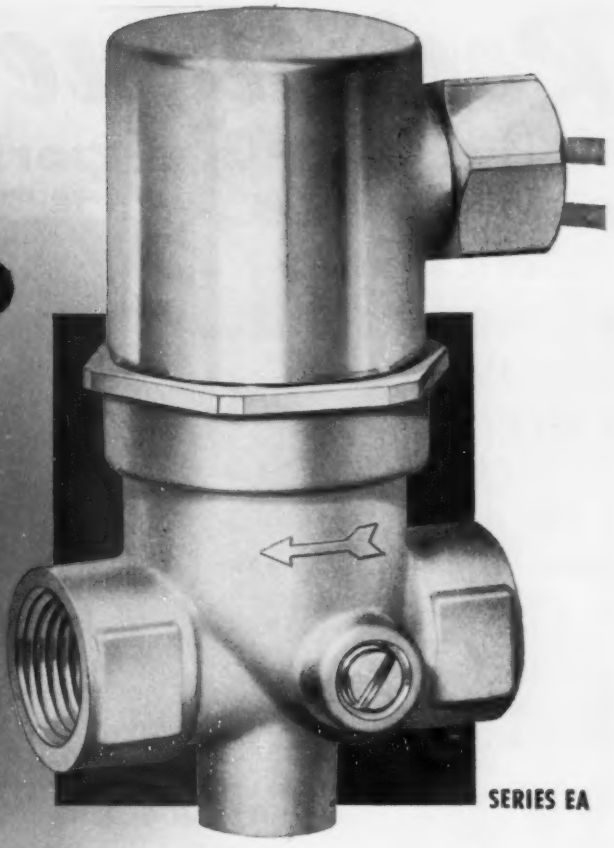
Harmon promoted to secretary of William Wallace Co.

Appointement of D. G. Harmon as secretary of the corporation is announced by William Wallace Co., manufacturers of Metalbestos gas vent pipe.

An employee of William Wallace

THE SOLENOID VALVE

made for all gases



SERIES EA

MGSCo solenoid valves handle all fuel gases—even sour gas. The internal parts of stainless steel and aluminum prevent damaging corrosion and assure long trouble-free life, continuing a record of control reliability famous in the gas industry.

Valves are available in ½″ and ¾″ sizes and can be had with a pilot tapping on either side or both sides of the body.

Directly beneath the valve disc can be placed either a pressure tapping or a manual control screw to hold the valve open during periods of power failure.

Wiring is easy because the solenoid hood turns through 360° and the conduit attaching nuts turn easily to accept the tubing.

All sizes can be supplied in 20-volt models using transformer DA1 (three-terminal) or DA2 (two-terminal).

MILWAUKEE GAS SPECIALTY CO.

Dept. SB-9

MILWAUKEE 1 • WISCONSIN

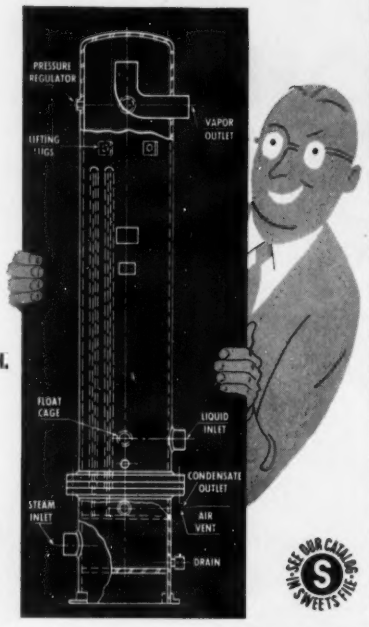
Redesigned!

Paracoil LPG vaporizers

(STEAM TYPE)

SERIES 48E

- REDUCED OVERALL HEIGHTS
- INCREASED CAPACITIES in many sizes



STANDARD PRODUCTION MODELS TO 6000 G.P.H.

DESIGN: ASME STAMPED, PAR U-69, N.B.F.U. PAMPHLET 58

Write for

NEW data and prices

DAVIS ENGINEERING

CORPORATION

1058 East Grand St., Elizabeth 4, New Jersey

30 Rockefeller Plaza, New York 20, New York

NEW DRILL CASE

For the Gas Serviceman

- Holds 41 drills — sizes 40 to 80.
- Each thumb drill has size stamped on handle in sequence.
- Each drill fully protected. Cannot break in case.
- Servicemen can carry in hip pocket. All metal — compact.
- Set will take care of general servicing requirements.

Original Manufacturers of Conversion Materials and Special Tools Serving the Gas Industry for Over 35 Years.

●

Write for Catalog

ANDERSON and FORRESTER

3563 LARIMER STREET, DENVER, COLORADO

ARMSTRONG

AGA APPROVED

GAS HEATERS

Model 8000 Vented Circulator

Assures dependable heating without the expense of complicated heating systems. Heavy gauge steel combustion chamber, fully welded, performs quietly and evenly under exacting conditions. Has blue-flame pilot burner. Body is porcelain enameled in Armstrong special "mocha-tone" finish.

NOTE — A Blower is available whereby air is propelled directly through the heat exchanger to give maximum efficiency and heat output. The blower is equipped with a 2-speed switch plus summer fan switch.

Automatic controls are available, so the Model 8,000 can easily be made fully automatic.

Write for Literature and Price List on Armstrong's Complete Line of 60 Models and Sizes.

ARMSTRONG PRODUCTS CORP.
Dept. BP, Huntington 12, W. Va.

See our Exhibit at the LPGA Show Chicago, Booth 328, May 6-9

WHEN IT'S AN ARMSTRONG DEPEND ON IT! IT'S THE BEST OF ITS KIND

since 1950, Mr. Harmon has recently held the positions of chief accountant and assistant secretary of the Belmont, Calif., firm.

Utility Appliance elects Skafte to board of directors

S. F. Skafte

Stanley F. Skafte, manager of the heating and air conditioning division of Utility Appliance Corp., Los Angeles, has been elected to the board of directors. He has headed the division for three years, and has been associated with Utility since 1947.

Mr. Skafte is vice chairman of the heating division, manufacturing section of the Pacific Coast Gas Association. He was also recently appointed to the board of directors of the Institute of Heating and Air Conditioning Industries.

Eaton Metal names McBride general sales manager

M. W. McBride

Murray W. McBride has been appointed general sales manager of Eaton Metal Products Co., Denver, according to an announcement by James A Travis, president of the company.

Mr. McBride was formerly advertising and sales promotion manager of the Midland Implement Co., Billings, Mont. He will make his headquarters and home in Denver.

Regional sales appointments made by ACF Industries Inc.

Ellsworth B. Carpenter, vice president of sales of American Car and Foundry Division of ACF Industries Inc., has been appointed to supervise and direct sales in the Eastern region of the United States, and John E. Angst, also vice president of sales, has been appointed to a similar position for the Western region of the United States.

Coincident with these appointments, J. R. Peterson has been appointed manager, market research of the division.

Mr. Carpenter will supervise and

Cut interference, save air time, multiply radio usefulness with new General Electric Personal Channel selective calling systems

New Progress Line Personal Channel Systems provide two-way radio users with individual calling, automatic recall or "leave a call"—make possible group calling with personal communication between dispatcher and driver after the call is placed.

Your two-way radio dispatcher can call or signal your drivers individually, with a new G-E Personal Channel selective calling system. He pre-selects the individual driver to be called or signalled by means of push buttons. Transmissions, with or without the electronic tones which provide the individual calling or signalling function, are made by pushing either of two push bars on a desk console.

With G-E Personal Channel individual calling built into two-way radio systems, dispatchers can call each driver—drivers need hear only calls beamed to them. Away from vehicles, drivers may automatically be recalled to the radio by a flashing light or sounding horn. If beyond range of the recall message, a signal automatically remains lighted on the radio control unit until the call is answered.

With a fleet equipped with Personal Channel group calling, drivers hear only calls from their own dispatcher. When the individual called answers the dispatcher, conversations then may become private.

New Progress Line Personal Channel Systems, for individual or group calling, effectively eliminate most of the nuisance interference due to crowded channel conditions. Both systems virtually eliminate bothersome "skip" interference from distant stations.

Present users of G-E all-electronic selective calling systems report increases up to one-third in useful air time. The ability to recall, or "leave a call", saves air time previously wasted when dispatchers repeated calls for drivers away from their vehicles.

NEW DEPENDABILITY

New G-E Personal Channel Selective Calling Systems now provide the highest possible reliability of operation. A new, simplified, electronic tone receiver selects proper tones in a more exacting manner than ever before. Limits within which the receiver will accept proper tones are dependent upon BOTH amplitude and frequency. The tones accepted must have the right amplitude as well as the right frequency.

Operating ranges of present two-way radio systems are not impaired by the addition of Personal Channel Selective Calling Systems.

All Personal Channel equipment can be incorporated within a single Progress Line mobile unit case, with the same cost-saving, interchangeable plug-in chassis feature provided in all Progress Line equipment.

Your General Electric Communications Counselor is ready now to recommend the G-E Personal Channel two-way radio system which will best serve you. For more information call him, or write: *General Electric Company, Communication Equipment, Section X3136, Electronics Park, Syracuse, New York.*

Progress Is Our Most Important Product

GENERAL ELECTRIC

direct the district offices in Cleveland, New York, Philadelphia and Washington, with headquarters in New York. Mr. Angst will supervise and direct the district offices in Chicago, St. Louis and San Francisco, with headquarters in Chicago.

Two new vice presidents elected by Worthington Corp.

Worthington Corp. announces the election of Elston J. Tribble and Aloysius M. Tullo as vice presidents.

Mr. Tribble, former assistant vice president - manufacturing, will have general supervision of a group of Worthington operating divisions which were recently organized under the corporation's decentralization program.

Mr. Tullo will continue as general manager of Worthington's largest division at Harrison, N. J.

John Yates covers Michigan for Brunner Manufacturing

John T. Yates has been appointed district sales manager of the newly created sales territory of Michigan for the Brunner Manufacturing Co.

Formerly the state of Michigan was included in the company's Cleveland territory, according to Frank C. Hawk, vice president of Brunner, and was handled by A. L. Halderman.

Mr. Yates will handle all of Michigan with the exception of the Northern Peninsula, which is part of the Minneapolis territory, and the counties of Berrien and Cass counties, which are serviced from Chicago.

Petrolane elects Munzer executive vice president

R. J. Munzer was recently elected to the office of executive vice president and general manager of Petrolane Gas Service Co., Long Beach, Calif., according to Robert Foote, president and chairman of the board of directors.

At the same time J. A. Storch was appointed to the office of vice president—marketing, and W. G. Ginder was made controller.

Falk appointed Sel-Pac New England distributor

According to George Postlewait, president of Selwyn-Pacific Co., Los Angeles, the firm of Gas-Kit Co., Glastonbury, Conn., has been appointed New England distributors for the complete Selwyn Pacific line.

Joseph Falk heads Gas-Kit Co. and is well known throughout the New England states for his activities in the liquefied petroleum gas equipment business.

Rollins is Magic Chef's national service manager

Herbert Rollins, formerly with Radio Corp. of America, Camden, N. J., has been appointed national service manager of Magic Chef Inc., according to Cecil M. Dunn, president of Magic Chef.

Mr. Rollins has held the positions of service manager and production manager with RCA. His office is in St. Louis, where the administrative headquarters of Magic Chef are located.

Mueller Climatrol division promotions announced

Five promotions were announced today by Frank J. Nunlist, vice president in charge of sales for Mueller Climatrol division, Worthington Corp.

Those promoted were: Elmore T. Scheck, former Milwaukee area sales manager, to regional sales manager of Wisconsin, northern Illinois and upper Michigan; M. H. Thomas as regional manager over Indiana, Ohio,

Red Jet

WEED CONTROL BURNER

The BEST and CHEAPEST way to control weeds and insects . . . .

USES LIQUID L. P. GAS — The Most Economical Burner Yet Designed.

- Uses Full Tank Pressure.
- Throws Flame 8 to 12 Feet.
- Flame Temperature 2500 Degrees Plus.
- Burns 12 to 25 Gallons Per Hour.

The RED JET Has Many Applications in Farm, Commercial and Industrial Uses!

- Kills All Annual Weeds.
- Kills Insects — Destroys Their Eggs.
- Prevents Reseeding.
- Decreases Labor Cost in the Fields.

Red Jet is the product of four years' experience in manufacturing weed control burners for use with liquefied petroleum gas.

Manufactured by

NORTHWEST FABRICATORS

NYSSA, OREGON

modern packaging For LPG PRODUCTS

PROPANE DOMESTIC

Whatever type of tank desired, McNamar can meet your requirements for size, quality of workmanship, and speed of delivery.

PROPANE AND AMMONIA STORAGE

McNamar can assure dealers not only a competitive price for a quality product, but also assistance in solving present and future financing problems.

When you deal with McNamar you are assured of immediate service. Don't lose peak season profits by waiting on tank delivery.

DELIVERY TRUCKS

★ McNAMAR TULSA

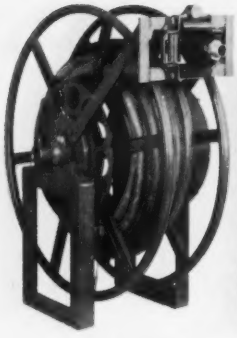
McNAMAR
BOILER & TANK CO.
BOX 868 • PHONE CHerry 2-6291
TULSA, OKLAHOMA

LPGA

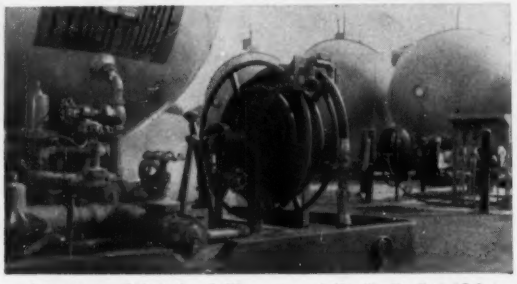
ACE SPRING REELS

Are Inexpensive to OWN—OPERATE!

- Original Cost Is Low.
- Installation Is Simple.
- No Drag On Your Battery.
- You ADD Years To the Life of Your Hose.



SPRING OPERATED
MODEL — SERIES 2100
Available for single or double hose on one reel.



Harry Horn, of Anaheim, Calif., — one of the West's first LP-Gas dealers—has chosen Ace Hose Reels for his fleet of bulk delivery trucks. Shown here is his latest Spring Operated Reel. He recommends them highly for ease and economy of operation.

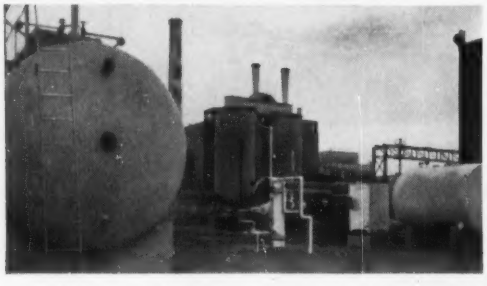
Series 2100 has many outstanding features:
They conform to all safety rules set up for the LP-Gas Industry . . . All pipe fittings are made of forged steel to comply with NBFU . . . Equipped with high pressure Chicksan Joints . . . High quality steel spring easily rewinds 50 ft. of 1 in. hose . . . Factory lubrication lasts for life of spring.

For "REEL" Satisfaction — Write ACE Today!

ACE HOSE REEL CO., LTD.
5466 ALHAMBRA AVE., LOS ANGELES 32, CALIFORNIA

DRAKETOWN

PROPANE PLANT OF THE MONTH



IBM

A typical small Packaged Drake town Plant for International Business Machine Corp. at Endicott, N. Y., supplies natural gas substitute during curtailment periods.

Many other large and small manufacturers and utilities rely on Drake town for absolute dependability of gas supply; automatic or manual operation with savings all down the line. Over thirty-five years of gas engineering experience is built into every Drake town Plant.

DRAKE & TOWNSEND, Inc.
CONSULTING — DESIGN — ENGINEERING — CONSTRUCTION
11 WEST 42nd STREET, NEW YORK 36, N. Y.

Members of: American Gas Ass'n, LP-Gas Ass'n, American Petroleum Institute, National Fire Protection Ass'n, Canadian Gas Ass'n, Agricultural Ammonia Institute.

western Pennsylvania and most of Michigan; Richard B. Schmidt to Milwaukee area sales manager; Chester J. Volpal to manager of traffic and warehousing; and Fred Heise to manager of repair parts department.

Clark Daugherty is assistant to Rockwell president

A. C. Daugherty

A. Clark Daugherty, former market research manager of Rockwell Manufacturing Co., has been named assistant to the president.

The market research, public relations and stockholder information departments will continue to report to Mr. Daugherty, who has also been assigned additional management functions.

Houston is Tappan Stove's production control manager

Promotions have been announced for M. E. Houston, William R. Kunkel, and Emmett W. McIntire of the manufacturing division of the Tappan Stove Co., Mansfield, Ohio.

Mr. Houston has been named to the post of production control manager after four years service as production manager.

Both Mr. Kunkel, who has handled fabrication production since 1953, and Mr. McIntire, a veteran of 20 years with Tappan, now become production managers.

Robertshaw appoints Gilbert district sales manager

Robertshaw-Fulton Controls Co. is announcing the appointment of M. R. Gilbert Jr. as district manager of the heating controls division in the Chicago area.

Mr. Gilbert joined the company in 1953 and for the past year served as sales representative in the cooking appliance controls division.

Mieras succeeds Allison as head of Warner division

The appointment of Spencer H. Mieras as president and general manager of Warner automotive parts division of Borg-Warner Corp., at Auburn, Ind., is announced by Roy C. Ingersoll, president of Borg-Warner.

Ralph Allison, who formerly was president and general manager of the parts division, has retired. He had been with Borg-Warner Corp. and its

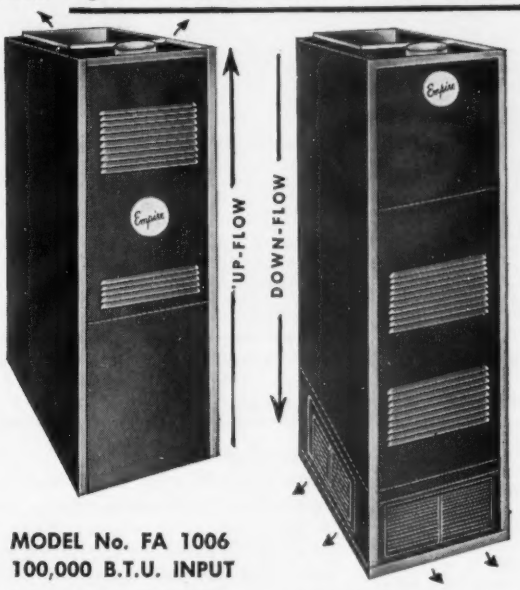
THEY'RE LOADED

With Great Features

Empire LOW COST

FA SERIES

THE *New* FAST SELLING LOW COST GAS CENTRAL HEATING UNIT



MODEL No. FA 1006
100,000 B.T.U. INPUT

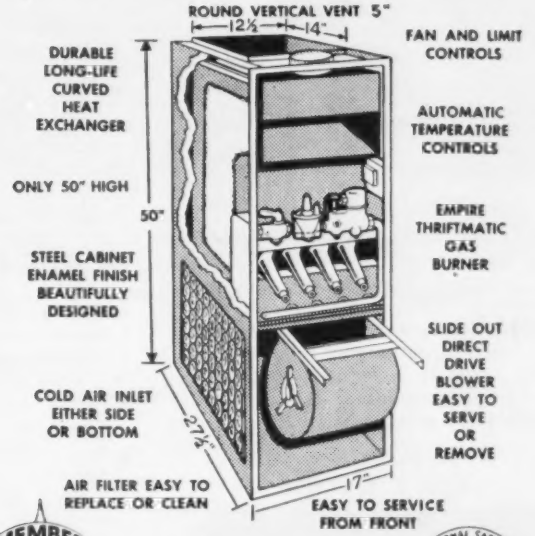
MODEL No. FA 756
75,000 B.T.U. INPUT

JUST A FEW OF MANY POSSIBLE APPLICATIONS

MODEL No. CFA 6100
100,000 B.T.U. INPUT

MODEL No. CFA 675
75,000 B.T.U. INPUT

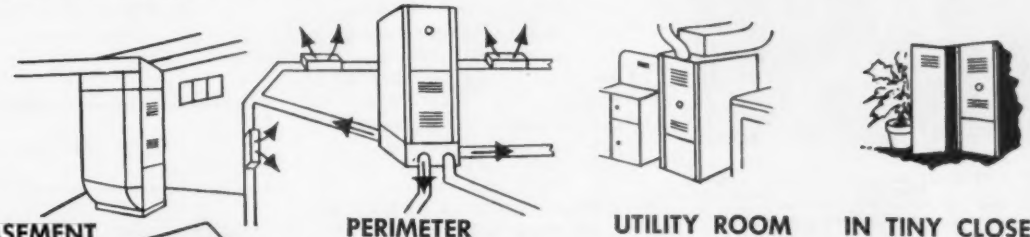
EASY TO INSTALL • FITS IN SMALL SPACE



MEMBER
national LP-GAS PROMOTIONAL program

SELL THE QUALITY LINE WITH THE LOW PRICE

AMERICAN GAS ASSOCIATION APPROVED — COMPLIES WITH NATIONAL SAFETY REQUIREMENTS



BASEMENT PERIMETER UTILITY ROOM IN TINY CLOSET

EMPIRE

Write for Further Information

STOVE COMPANY
BELLEVILLE, ILLINOIS

predecessors for 45 years and had been president and general manager of the parts division since its founding in 1938.

Neubauer and Roza are new Servel district managers

New district managers for the New Haven and Minneapolis territories of Servel Inc. are announced by Richard S. Testut, vice president in charge of home appliance sales.

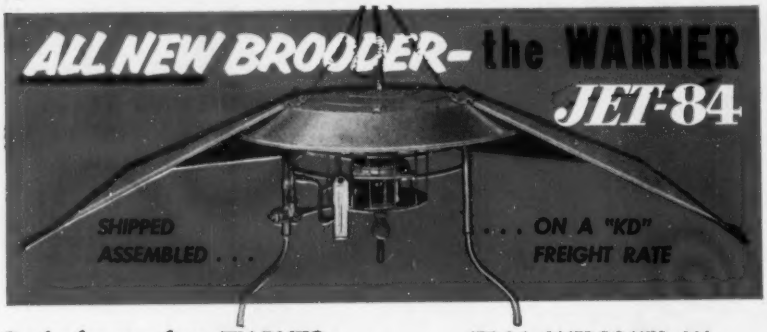
Edward H. Neubauer, formerly a service representative in Servel's New York region, will manage the New Haven district.

Richard J. Roza will head the Minneapolis district. He was previously a Servel sales representative in that territory.

Wright is sales engineer for Roberts-Gordon Appliance

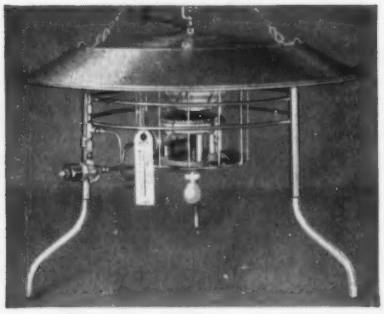
The appointment of William L. Wright, Jr., as sales engineer of Roberts-Gordon Appliance Corp., Buffalo, is announced by William E. Davis, vice president in charge of sales.

Mr. Wright will call on and service dealers and jobbers throughout the United States. He will work out of the Buffalo office.



Ready for you from WARNER . . . the ALL NEW JET-84 gas brooder one man can set up and light in just 10 minutes! The JET-84, a husky, brooding brute, boasts 25,000 BTU spuds, unimatic Robertshaw controls for positive, automatic, full throttling heat control, a sleek, compact, two-piece cast aluminum burner; and a 50 to 1,500 chick capacity.

JET-84 ENGINEERED FOR HEAT PLUS SAFETY



Hefty 25,000 BTU spuds and cast aluminum burner deliver heat aplenty. The Robertshaw control automatically changes heat with the weather. The pilot burns at all times, either with or without the simmer flame.

The JET-84 burner unit and heat control are completely tested before shipment to prevent trouble and insure excellent service. The JET-84 burns LP, manufactured or natural gases with full throttling controls with or without simmer flame. Warner engineers built this baby to deliver the goods!

JET-84 OVERCOMES ALL OBJECTIONS TO STANDARD GAS BROODERS!

1 No nuts or bolts used in set-up.
2 One man easily sets it up.
3 Comes assembled—takes 10 minutes to set-up.
4 Packed in two cartons, is 99.44% assembled, yet takes "KD" rate.
5 Goes through any 18" x 36" opening.
6 Canopy sections (6 in all) are removable without unbolting anything.
7 Constant temperature in all weather maintained by full-throttle Robertshaw control and cast aluminum burner.
8 Electric light at bottom-center of hover lights entire hover area.
9 Lights in seconds—precision controls guard against failure.
10 Burner unit cleaned in 10 minutes without stoop, squat or squint.
11 Can be used as space heater for milk rooms, laying houses . . . any place low cost heat is needed.

INFORMATION WILL BE RUSHED TO YOU ON REQUEST

WARNER Poultry-Farm Equipment

The Warner Brooder Corporation
North Manchester, Indiana

OBITUARY

Roy Hanson

R. E. Hanson

Roy E. Hanson, Los Angeles manufacturer of tanks and other equipment for the LPG industry, passed away on Jan. 20. His home was in Altadena, Calif.

Mr. Hanson was a designer, engineer and inventor. He founded his own company in 1931 in Hollywood to make welded tanks and was one of the early pioneers in the L. P. gas equipment field in California. He was the manufacturer of the Hanson Red Head carburetor.

Up to about one year ago he operated the Roy E. Hanson Co. in Los Angeles. This plant is now under the management of his son.

Don C. Nicol

Don C. Nicol, manager of the New York City office of Ruud Manufacturing Co., Kalamazoo, Mich., died in December at his home in Chatham, N. J. He devoted his entire business life to selling automatic gas water heaters.

Mr. Nicol was employed by John Wood Manufacturing Co. for 22 years, in that time traveling for the most part in Chicago and the Mid-West. He joined the Ruud water heater sales organization six years ago as New York district manager. He was 47 years of age.

C. A. Ballard

C. A. "Chuck" Ballard, district manager for United Petroleum gas Co., passed away Jan. 1 in Jackson, Miss., as a result of a heart attack.

Mr. Ballard has been affiliated with his firm for nine years in the south central area as district manager. Prior to going with United, he was associated with Phillips Petroleum Co.

PRESSED PRODUCTS
... from our HEAD DEPARTMENT

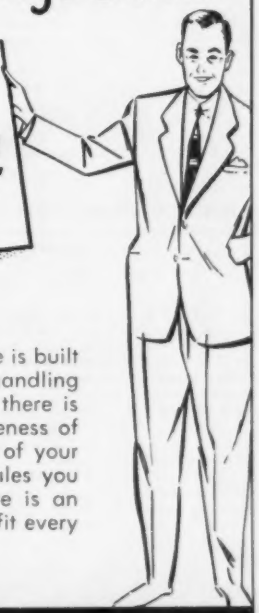
MASTER TANK & WELDING

HEADS IN STOCK READY TO SHIP

P. O. Box 5146 • Dallas, Texas • PRospect 2441

PROFITS PLUS with the Complete Range Line...

Enterprise



DEALERS . . . the Enterprise range line is built with you in mind. For each dealer handling Enterprise, the complete range line, there is profits plus. Because of the completeness of the Enterprise range line, the scope of your market broadens. Thus, you close sales you otherwise would have missed. There is an Enterprise range available to you to fit every kitchen need.

CALL • WRITE OR WIRE •

PHILLIPS & BUTTORFF MFG. COMPANY

NASHVILLE • TENNESSEE • Established 1858

BPN CLASSIFIED Advertising

All Classified Advertising payable with order. Copy must reach publisher's office prior to the fifth of the month preceding publication. Address: Classified Advertising Material, BUTANE-PROPANE News, 198 S. Alvarado Street, Los Angeles 57, Calif.

DISPLAY CLASSIFIED

$12.00 a column inch per issue. Choice of 18, 14, 12, 10 pt display type for headings. Set with 1 pt border. Maximum ad size 3". No cuts permitted. Publisher will set ad for maximum effect in space purchased.

UNDISPLAYED CLASSIFIED 15¢ a word. Set in 7 pt type without border. $3.00 minimum charge per insertion. If Blind Box number care of B-P News is used, count as five words.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

HELP WANTED

WANTED: TECHNICAL WRITER. WE need a technically trained man under 35 for the editorial staff of BUTANE-PROPANE News. He should have a background of mechanical engineering and experience in LPG or Gas Operations—with emphasis on equipment. He should be able to write clearly and cleanly and have done some work in preparing reports. He should have an inquisitive mind and like to probe into the "Why" of things, and be able to explain to others what he has found out. Experience in magazine or newspaper production as well as photography is desirable, but not essential. Duties will include field trips to gather data for original articles. Application by letter only. Send details to: BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

SUPERVISOR: FOR LP-GAS RETAIL plants in California. Some sales and mechanical experience, age approximately 30 years, married, future in management position. Reply Box 17, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

SALES ENGINEER — PREFER AUTOMOtive or M.E. grad. for motor fuel and/or industrial work. BOB ROSS, INC., 2503 W. 67 St., Chicago 29, Illinois.

SITUATIONS WANTED

POSITION WANTED: WOULD LIKE A challenging position in the South or Southwest. Something that offers a future for the person willing to work for it. A position with an incentive plan. Am willing to work for small salary with working interest in business or option to buy interest. 3½ years experience in LPG work; installations, truck delivery, service, sales and collections. Reply Box 19, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

BUSINESS OPPORTUNITIES OFFERED

L. P. GAS DISTRIBUTORS
EAST TENNESSEE

L. P. Gas and gas appliances to individual and industrial users. 2 locations under separate management. Both in large populated areas, in good buildings, with ample room on each lot for complete operation of the business. Complete equipment throughout. Both sold as one unit. Ideal buy, with little competition. Doing a volume business, netted $30,000 last year. Dept. #7000 for further information.

WHOLESALE LUBRICANTS, North Central California, in top city, $470 or more per month net. Ideal location. Building included. Distributes its own brand. Priced low for a quick sale. Dept. #22812.

FREE BULLETINS ON ABOVE BUSINESS

CHAS. FORD & ASSOCIATES
87 Walton St., Atlanta, Ga.
6425 Hollywood Blvd.
Los Angeles, Calif.

BUSINESS OPPORTUNITIES - Cont.

LPG BULK PLANTS. WE SPECIALIZE IN selling petroleum properties throughout Midwest. Have number desirable plants for sale. OLE BRODD, PETROLEUM MARKETERS, 605 Produce Bank Bldg., Minneapolis, Minnesota.

BUSINESS OPPORTUNITIES WANTED

WANTED TO BUY: BULK AND CYLINder propane business, Northern Illinois. Give all details first rpely. Reply Box 20, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

WANTED TO BUY: PROPANE TRANSport and tractor. Excellent condition only. Send all information and photograph. SchagrinGAS Company, Middletown, Delaware.

FOR SALE — TRUCKS - TRAILERS

1400 WG MODEL 100 TWIN, 250 Lb. W.P. trim skirted tank, mounted on 1956 Chevrolet 2 ton, 2 speed, 825 rear tires, ONLY $3,755.00, Fed. Tax paid. Pump, meter, hose, plumbing also available. EASY TERMS. White River Distributors, Inc., Phone 570, Batesville, Arkansas.

BULK TANK TRAILERS. RUGGED AND well balanced. Designed so one man can set underground tanks. Carl A. Raub, Madisonville, Kentucky.

NEW 1800 WG U-69 DELIVERS MORE GAS IN LESS TIME! This Nor-Tex Twin Delivery Unit is equipped with high flow piping throughout. Mounted on your choice of truck or on your present truck chassis for only $2,194.80 (including tax). Trim skirting, ICC lights, Viking mechanical seal pump, P.T.O. spline jack shaft and 50 ft. of filler hose. Call NOR-TEX PRODUCTS COMPANY collect, C-5416, Denton, Texas.

FOR SALE: L. P. TRANSPORTS, UNUSUally low prices. Highway, single tank, single axle, 4798 W.G. Trailco, single tank, single axle, 5952 w.g. Fruehauf, double tank, tandem, 6044 w.g. Butler, double tank, tandem, 6015 w.g. All units fully approved, good operating condition, good rubber. ALSO — four tractors for sale. Two LJT Macks; One LMU Mack; One 30-26T White. Good operating condition. Conservative Gas, Box C, Wyandanch, New York.

FOR SALE: DELIVERY TRUCK, 1500 gallon single or double barrel units, plumbed Viking KK200 pump, PTO, 50 ft ¾-in. hose, 50 ft ½-in. hose, directional lights, mounted on new two-ton Chevrolet truck and ready to pump gas at only $4875.00, Federal Tax paid. 25% down and up to thirty-six months to pay. McNamar Boiler & Tank Company, Box 868, Tulsa, Oklahoma. Phone CH 2-6291.

1800 WG MODEL 100, 250 Lb. WP TRIM skirted tank, mounted on 1956 International SP-162 with a 264 cu. in. FACTORY LPG ENGINE, 2 speed axle, 825 rear tires, only $4,-166.00, Fed. Tax paid. Packaged Plumbing, meter, etc., available. EASY TERMS. White River Distributors, Inc., Batesville, Arkansas.

FOR SALE—TRUCKS - TRAILERS - Cont.

SPECIAL CYLINDER SERVICE TRUCK—1½-ton 1953 G.M.C. chassis. Accommodates 32-100# cylinders including eight cylinders in low side compartments—two large tool boxes—heavy steel construction—good condition — $1050.00. Alton Bottle Gas Co., Box 214, Alton, Illinois.

FOR SALE: ONE 4,000 WATER GALLON propane double barrel propane semi-trailer. 1947 Dalworth single axle. Air brakes. A-1 condition. Arrowhead Stations, Ogallala, Nebr. Phone 107.

YOU'LL SAVE MORE TIME AND MONEY with a Nor-Tex "Package Unit." Any user will tell you, "They earn more! They cost less!" Mount this 1400 WG U-69 Twin Delivery Unit on a new truck of your choice or on a truck you now have for only $1,935.00 (Includes tax and mounting cost). It delivers more gas in less time because it's equipped with high flow piping throughout. Trim skirting, P.T.O. spline jack shaft, Viking mechanical seal pump, 50 ft. filler hose and ICC lights. Painted white enamel over red oxide. Call NOR-TEX PRODUCTS COMPANY collect, C-5416, Denton, Texas.

DELIVERY UNITS: SINGLE OR Twin Barrel. Our prices are competitive. We invite comparison between the equipmen and price on our units with any competitive units. We believe we can give you the highest payloads per pound of gross vehicle weight. Write, wire, or phone, Lubbock Machine & Supply Co., Inc. Drawer 1589, Lubbock, Texas.

FISK TRAILER
'The New Idea'
Storage tank trailer for transporting consumer storage tanks up to 1260 w.g. Save time and labor with this one man (1) HYDRAULIC operated unit. $499.50 F.O.B. Oshkosh, Wisconsin. Write:
FISK TRAILER SALES COMPANY
Mounted Route No. 26
FOND DU LAC, WISCONSIN

FOR SALE: 5000, 5500 and 6000 gal. W.G. U69 Tandem Propane Twin Barrel Trailers. Choice of 16 with 50% 10:20 tires, air brakes. Now operating. Texas R.R. Commission, ICC, ASME approved. Delivery will be made to most northern cities for $200. Write for pictures, details. IRVIN F. NELIS ASSOCIATES, P. O. Box 14472, Houston 21, Texas.

TRANSPORTS: SINGLE OR TWIN barrel; new or used; for lease, or sale on budget or rental sale plan. If you want maximum payload, with all of the latest equipment engineered to fit your truck, roads, and your hauling problem, get the LMC PAYLOADER. Contact Lubbock Machine & Supply Co., Inc., Drawer 1589, Lubbock, Texas.

CLASSIFIED Advertising

BPN

FOR SALE — TANKS - CYLINDERS

FOR SALE—EIGHT 62-GALLON ASME-U-69 Motor Fuel Tanks made by Pressed Steel. New—never been used. Completely valved. Available separately or in pairs with racks for saddle mounting across frame. $50 each, racks—$25 each. J. M. Woody, Bottled Gas Corp. of Va., Box 5224, Richmond, Virginia.

FOR SALE: 4000 GALLON 200# W.P. propane twin barrel transport Trailer Tank, with 1000 x 20 tires, fire extinguisher and air brakes. Price $2,700.00 Contact Bill's Truck Shop, Phone 9548, Shamrock, Texas.

SKID TANKS
— IN STOCK NOW —
3000 gallon size built especially rugged for oil field use. Write, wire or phone
Lubbock Machine & Supply Co., Inc.
P. O. Drawer 1589
Lubbock, Texas

OVER 2000 TRACTOR AND MOTOR FUEL TANKS CURRENTLY IN STOCK
Write for WEEKLY stock lists.
WESTERN TANK & STEEL CORP.
Box 1013
Lubbock, Texas

STORAGE TANKS
Available Immediately
In the following capacities: 1000, 2000, 3000, 5000, 6000, 8000, 10,000, 15,000, 18,000 and 20,000. Your choice of 46" to 96" diameter. Write, wire or call Lubbock Machine & Supply Co., Inc., P. O. Drawer 1589, Lubbock, Texas.

ABOVE GROUND
PROPANE TANKS
115 to 1000 Gallons
2 to 3 YEARS TO PAY, or
CONSIGNMENT PLAN
Unloaded by our truck
on your yard.
Write TODAY
for Prices and Details.
WHITE RIVER
DISTRIBUTORS, INC.
Batesville, Arkansas

HOW TO FIND
A BUYER
You can do it quickly, inexpensively with a classified ad in BUTANE-PROPANE News.

FOR SALE - TANKS - CYLINDERS - Cont.

PROPANE
TRUCK TANKS
Model 100 with trim skirting. Prices INCLUDE Fed. Tax and mounting on chassis.
1400 WG—$1,395.00
1500 WG—$1,482.00
1800 WG—$1,676.00
2000 WG—$1,892.00
2200 WG—$2,108.00
Your choice of 5 Models, 600 to 2300 WG Twin or Single.
Packaged Plumbing, pumps, meters, etc., and all makes of trucks available. LOW DOWN PAYMENT, up to 3 Years to Pay. Write for Descriptive Folder.
WHITE RIVER
DISTRIBUTORS, INC.
Batesville, Arkansas

FOR SALE—MISCELLANEOUS

SERVEL REFRIGERATORS
CLEAN — ALL CHECKED OK
Model M500A.....$15.00 each
Model N500A.....$18.00 each
In lots of 12 or more.
FRED A. BROWN COMPANY
100 E. Allegheny Avenue
Philadelphia 34, Penna.
Est. 1918 REgent 9-1130

FOR SALE: BAKER ALCOHOL PUMPS—The sure cure for moisture conditions. Standard equipment of many LP Gas Dealers. Hydraulically designed to inject alcohol against pressure. Baker-Engineering, Malone, N. Y.

DECALS MADE FOR TRUCKS, EQUIPMENT. Small or large quantities. Catalog free. Mathews Co., 827 S. Harvey, Oak Park, Ill.

FOR SALE — IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P.O. Box 396, Beloit, Wisconsin.

SHOCK-BLOCKS: SOLID OAK APPROX. size 6"x4½"x12", tapering end. Swivel handle for easy handling. Preservative paint used for longer life. $18.00 per dozen blocks. Shipped F.O.B. Send check with order. Bilt-Well Woodworking Co., Route 46, Parsippany, New Jersey.

SERVEL GAS REFRIGERATORS
S600A, with CROSS-TOP FREEZER
R400A 4 cu. ft. @ $22.00
S400A 4 cu. ft. @ $28.00
OTHER MODELS AVAILABLE
Used: guaranteed in good operating condition. Modern, attractive, excellent condition. Minimum shipment 12. Low delivery cost anywhere. Send for illustrated folder NOW and be ready for your Spring selling season.
BEACH REFRIGERATOR CO.
196-11 Northern Blvd., Flushing 58, N. Y.
Phone Flushing 7-6161

PROFESSIONAL SERVICES

INDIVIDUALLY DESIGNED
Ammonia and LP Gas Plants
H. Emerson Thomas
& Assoc., Inc.
Westfield, N. J.

LP GAS INSTALLATIONS and
ANHYDROUS AMMONIA PLANTS
DESIGNED AND INSTALLED
"There's No Substitute For Experience"
PEACOCK CORPORATION
Paul E. Peacock, Jr., Pres.
Box 268, Westfield, N. J.

L. P. GAS
INSURANCE
Have your agent write us about our Complete and Comprehensive Coverage for Adequate Limits of Liability at Reasonable and Normal Rates with Specialized Safety Engineering and Claim Service. Available only in Alabama, Arkansas, Arizona, Georgia, Kansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.
PAN AMERICAN FIRE &
CASUALTY COMPANY
Earl W. Gammage, President
P.O. Box 1662 Houston, Texas

COMPLETE
LP GAS SERVICE
TO SELLERS — Sales Reports, Accounting Reports, and Engineering Services to sell your business with no cost to you.
TO BUYERS — We are able to give you ALL the facts regarding the LP Gas businesses we have for sale. Write us or call collect.
FEDERATED PETROLEUM
SERVICES, INC.
Sales Office: 3230 University Ave. Madison 5, Wisc.
Accounting Office: 300a Broadway Hannibal, Mo.

MISCELLANEOUS SERVICES

BUSINESS RECORD FORMS. ALL-WEATHER EZE-SNAP delivery invoices, for use when making LP gas metered truck deliveries. 1000 sets (3 part) imprinted with name, address and telephone. $17.50 per 1000 sets. DEGREE DAY SYSTEMS, WOODSIDE 77, L. I,. N. Y.

CLIENTS OFTEN INCREASE PROFITS 2% or more by using my cost reducing bulk and bottle operating procedures and sales procedures. Property evaluations and special assignments also handled. Floyd F. Campbell, Management Counselor, 821 Crofton Ave., Webster Grove 19, Mo.

WHATEVER IT IS
YOU HAVE FOR SALE, WANT TO BUY OR TRADE OR FIND — you can do it quickly, easily, with a B-P News classified ad.

QUALITY PRODUCT
JOHN WOOD
SINCE 1867

For QUALITY and SERVICE

Glass-lined or Galvanized

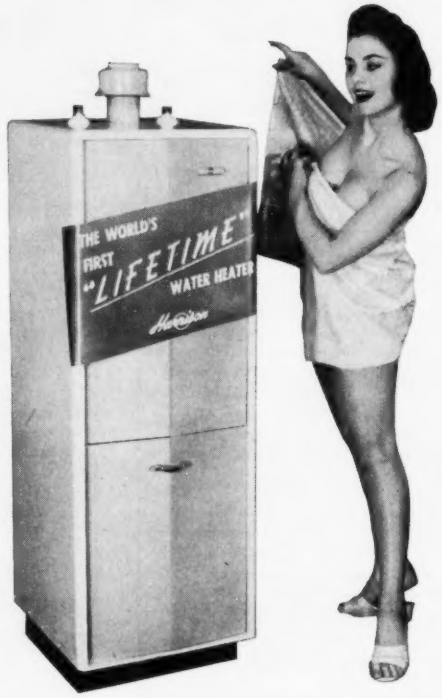
JOHN WOOD Automatic Gas Water Heaters are highest-quality heaters, known for their dependable, trouble-free performance. Nationally advertised. Fully warranted. A wide variety of sizes, models, and prices to meet any sales situation.

JOHN WOOD
AUTOMATIC Gas
WATER HEATERS

Made and warranted by one of the country's oldest, most reliable water heater manufacturers, Conshohocken, Penna. and Chicago, Ill. Approved by the American Gas Association and endorsed by Mrs. America®.

HARRISON

introduces the world's first LIFETIME water heater!



At Last a water heater designed to blend perfectly with today's beautiful appliances.

At Last a water heater engineered to last a lifetime. Harrison's new "Super Flexi-glass" makes this unusual offer possible.

Get on the bandwagon ... the "Sell-on-Sight" demand will be tremendous. Let us show you how the complete HARRISON line is in a class of its own ... write now ... and ask about our exclusive franchise plan.

INCREASE YOUR MARGINS!

SEND THIS COUPON NOW

Harrison STEEL CABINET COMPANY
4718 West Fifth Ave., Chicago 44, Ill.

Please send more information on HARRISON **WATER HEATERS**

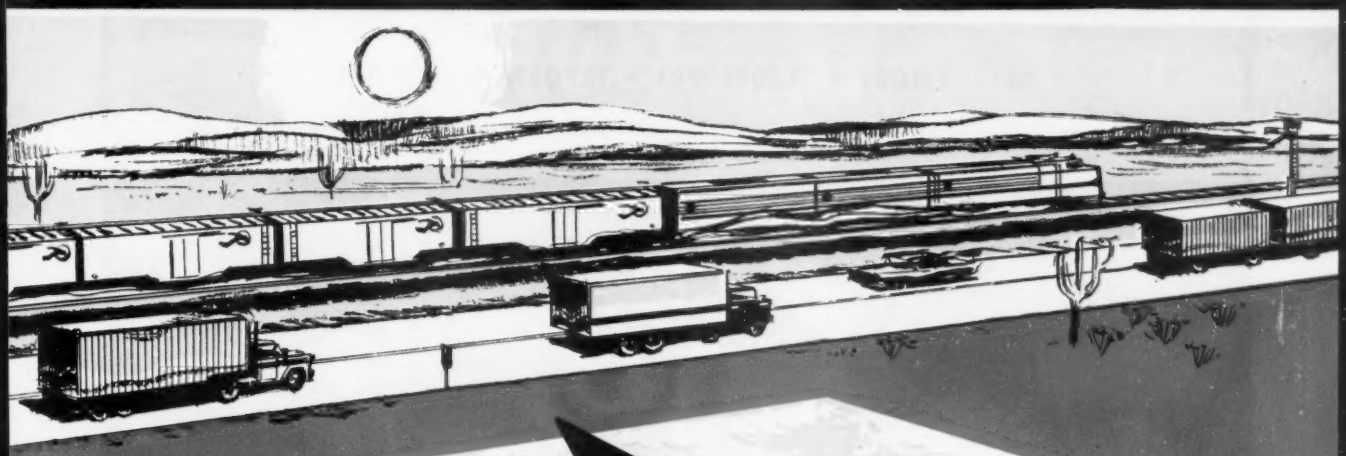
Name _____
Company _____
Street _____
City _____

POWER

Agriculture for Automotive and Industry

POWER SECTION

CARBURETION • INSTALLATION • SERVICING



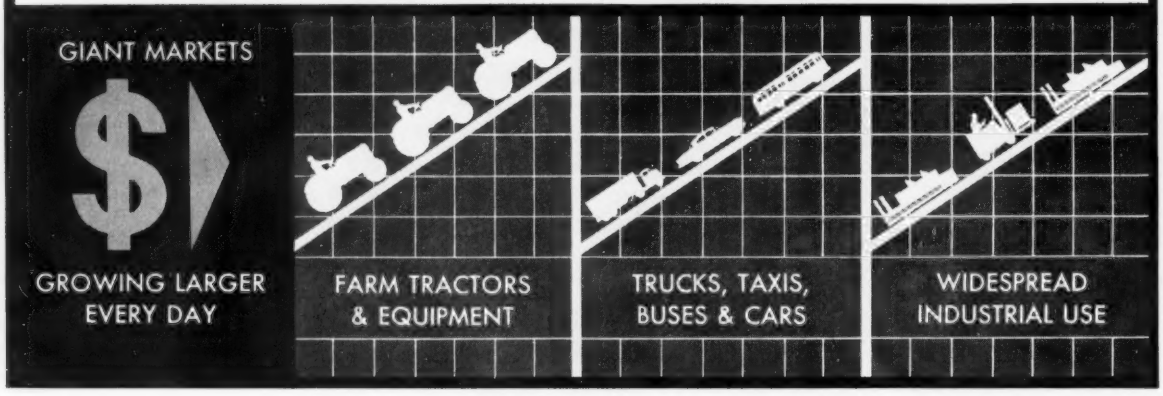
LPG PRECOOLS PERISHABLE CROPS

Perishable fruits and vegetables reach your table in more nearly field-fresh condition, taste better and keep longer, because of precooling before shipment. This rapidly developing science offers a big potential market for LPG wherever perishables are grown for shipment to remote markets. . . See Page 151.

ZENITH

LP-Gas systems

CARBURETORS • REGULATORS • VAPORIZERS • FILTERS



The Key to the Biggest Potential in the ever expanding LP Gas Market

The market for Zenith* LP Carburetion is one that runs into the millions of units. With the ever expanding use of LP Gas on farms, in industry and on the highways, today's sales are but an indication of the volume sales that lie ahead.

Zenith LP Gas Systems are the product of the oldest and widest-experienced carburetion manufacturer in the industry. Individual applications are factory engineered for a wide line of vehicle, industrial and farm uses.

Remember, too, every Zenith installation means an added source of fuel revenue from satisfied customers.

It will pay you to get complete detailed LP Carburetor information and data. Write our LP Gas Sales Department today.

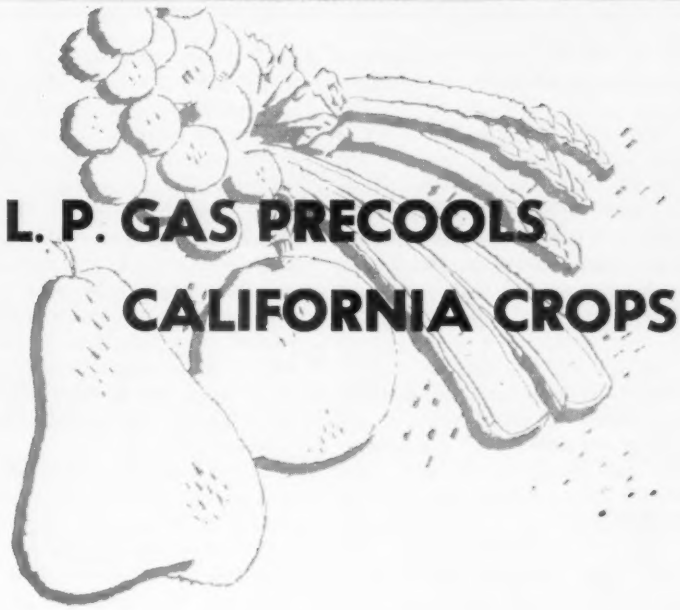
*REG. U.S. PAT. OFF.

ZENITH CARBURETOR DIVISION
696 Hart Ave., Detroit 14, Michigan
Export Sales and Service: Bendix International Division, 205 E. 42nd St., New York 17, N.Y.

ZENITH CARBURETOR DIVISION

Bendix AVIATION CORPORATION

Precooling of perishable crops by means of propane-operated portable refrigerating units that follow the crop seasons up the Pacific Coast provides a big off-peak load for nearly a dozen California LPG dealers. This precooling is an important factor in the transportation and long-time storage of fruits and vegetables that need to be marketed in the fresh state rather than "quick-frozen." We believe there are many areas producing fruits and vegetables where propane-operated precoolers could be used with profit to the farmers and to the L. P. gas dealers.



L. P. GAS PRECOOLS CALIFORNIA CROPS

By JIM KENNEDY

THE MOST important thing in life is food. One of the greatest problems of all time has been how to keep it in prime conditions for wintertime use, long after the harvest is over.

In the early days many methods of storage were used, such as covering with earth in the old root cellar, drying, canning, etc. But all of these adversely affected the color, flavor and texture of food and resulted in loss of vitamins.

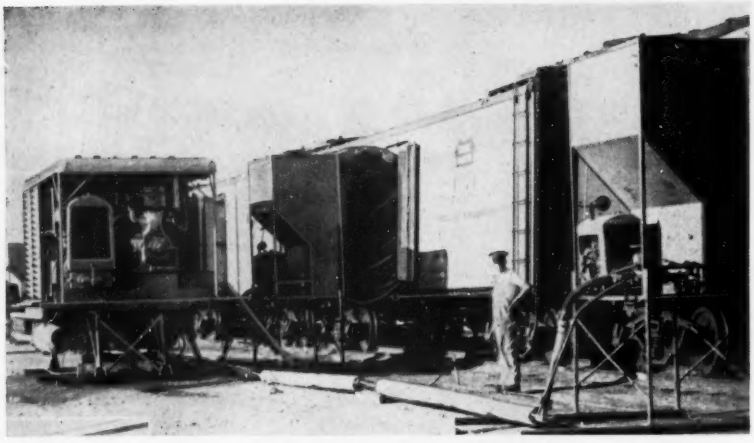
As the importance and value of vitamins became better understood, it was realized that old methods were inadequate. People could live longer if some better techinque could be found to keep food.

Then the ice-cooled refrigerator car came along. It was an improvement in getting crops to market but, unfortunately, a large percentage of the produce rotted before it could be put into the hands of the ultimate consumer.

At last a process has been developed that overcomes this problem and retains the vitamins and all other valuable characteristics. The snowbound areas can be June in January as far as garden produce is concerned, for it is now possible to have fresh fruits and vegetables on the table every day in the year, wherever we may be. The answer lies in *precooling*. Quick freezing is a different approach to the same objective.

Practically all perishable crops from distant producing centers are now "conditioned" for their freshness and keeping qualities or shelf life by precooling processes. This is accomplished before the refrigerator cardoor is closed to start the journey to market.

Thousands of cars are given their most effective precooling by LP gas-powered engine units. How much of a market is developed in your locality probably depends on resourceful local suppliers or ingenious men



Melons in a large producing area are being cooled by the refrigerator plants.

like H. Y. Stebbins, whose pioneering ideas developed a whole new business.

Regenerative heat is the enemy of shelf life, and the real villain that robs our fruits and vegetables of color, flavor and wholesomeness. It is also one of the important problems of precooling. What it is, and how it works, was not too well understood until recent years.

The cycle of life is a two-way street — always building up and tearing down. Fibers and pulp are built up in fruits and vegetables until the peak of ripeness—then the process is reversed. Regenerative heat is the first step in the tearing down process.

When fruit or vegetables are picked, or fall off the plant ripe, they begin to generate heat within themselves in much the same manner as a barn full of damp hay. This triggers a gradual chemical change, which starts to soften or weaken the fibers, and cell structure or crispness begins to break down. The longer it goes unchecked, the greater the deterioration. The process is described as regenerative heat damage.

But as soon as the temperature of the produce is reduced to 32° to 35° F, deterioration is brought to an abrupt halt. In commercial practice, 34 to 40° is generally accepted as adequate for most crops.

What regenerative heat and resultant chemical action can do to one vegetable is aptly demonstrated by the difference in flavor between freshly picked sweet corn and corn which was picked 12 or more hours before cooking. Regenerative heat has started chemical action within the kernels, which inverts or changes the sugar to starch. It doesn't taste as good—and it isn't as good for you.

Two complicating and varying factors associated with regenerative heat must be contended with in the pre-cooling of perishables. One is the degree of ripeness of the produce when it is picked, and the other is the lapse of time between picking and cooling. If it is picked too ripe and/or the grower is too slow in getting it to the machines, proportionately more time is required to precool a given crop, to compensate for weakening fibers.

By old methods, a refrigerator car was pre-iced and the crop packed in. As the ice melted in cooling the car, it was renewed repeatedly. By the time the crop was chilled through, much ice, labor and time were consumed, and at great expense. But worst of all, regenerative heat had cancelled out much of the advantage of cooling. The process took too long. Even after this, the car had to be iced each day.

Modern precooling involves placing the crop into the refrigerator car in boxes or crates, and quickly connecting the precooling units. Every minute counts. The car may or may not have been pre-iced. Refrigerated air is quickly blown in while at the same time warm air from the car is being exhausted.

This method saves many hours in the time required to reduce temperatures to a point where regenerative heat has no further power to deteriorate. This is important since shelf life after the car reaches its destination will be directly proportional to the time elapsing between picking and cooling.

Precooling is continued until the pulp and car temperatures are reduced to between 34 and 40° F. A special type thermomenter is periodically inserted into the heart or pulp of the product cooling to determine the pulp temperature.

Different lengths of time are required to precool different crops. Four hours is generally required for strawberries, about 12 hours for pears, and 8 hours for peaches—but the two varying factors of ripeness when picked, and time required to cool the crop, will sometimes change these figures.

Precooling as it is known today dates from the time H. Y. Stebbins walked into the plant of Buffalo Cold Storage in 1932, and was knocked to the floor by a large piece of ice on the back of a worker. Intense irritation quickly gave way to curiosity as to why a big ammonia refrigeration plant was using ice.

The manager explained ice was used, and lots of it, to cool the warm refrigerator cars standing on the railroad siding. These were to be loaded with eggs from cold storage.

At that time it cost about $4 to manufacture a ton of ice while about 60 cents covered the cost of equivalent cooling by ammonia refrigeration. There was no answer as to why ice was used, particularly in the face of surplus capacity of ammonia refrigeration. The upshot of the conversation was an invitation to suggest how the surplus refrigeration capacity could be used to do the job for which ice was then employed.

Mr. Stebbins did better then suggest. Next morning he returned with a plan. Brine was piped from the plant into the car through a flexible hose. This was connected to a Mack truck radiator which was at hand, the brine circulated through it and back to the plant through another hose. A fan placed in back of the radiator cooled the car in less time and at far lower cost than formerly.

From this beginning and considerable experimentation to perfect equipment and methods, Mr. Stebbins organized the Precooler Corp. in Chicago and commenced business in 1933. Two years later the company was bought by General American Transportation Corp. with Mr. Stebbins retained as general manager.

Research into the whole field of cooling by Mr. Stebbins, as well as the U. S. Department of Agriculture, established the fact that shelf life of fruits and vegetables is inversely proportional to the length of time between picking and cooling. It was found in the case of grapes, for example, that every hour saved during this interval resulted in one week longer shelf life. So precooling was extended to field crops.

In 1950, after being in retirement for two years on account of poor health, Mr. Stebbins reorganized the business as Precooling Service Inc. of Los Angeles, and became president. Harry Mangels took charge of field activities as operating vice president, and played an important part in precooling development.

The shipper, who may or may not be the actual grower, pays for precooling. Railroads have several produce rate classifications depending upon how many times a car must be iced in transit or otherwise. The fewer the number of icings required, the lower the rate. Precooling does not cost—it saves—because it reduces the rate classification enough to pay for itself. Also, the crop arrives at destination in better condition, thus bringing better return to the grower, shipper and marketer.

Four classes of equipment are used by Precooling Service Inc. to handle various kinds of crops and to meet different sets of circumstances. There is the 50-ton Gypsy unit, the 30-ton truck and trailer unit, the Water Bath Unit, and the individual electric unit.

Twenty six of the large semi-trailer mounted 50-ton Gypsy units are in operation and each can cool three refrigerator cars simultaneously. Assembled complete on a semi-trailer with all the related cardoor coolers, it is moved by tractor to the point where it is needed, as it is needed. This could be an open field bordering a railroad siding or a packing house.

Heart of the Gypsy units is the L. P. gas-operated 150-hp Hercules engine, which drives the ammonia compressor. Flanged insulated pipes carry the refrigerant to the three cooler sub-units, one of which is shrouded to each cardoor.

The refrigerant is expanded in the radiator mounted in each cooler, from which the chilled air is blown through the cargo very rapidly by a 10-hp Hercules L. P. gas operated engine. At the same time, warm air is being exhausted and recooled.

Two 150-gal. L. P. gas tanks are mounted under each semi-trailer to supply fuel for the four engines which comprise the Gypsy unit. Each unit uses 7 gal. of L. P. gas an hour while working.

When three or four Gypsy units are spotted at one location for several days, arrangements are made with the nearest local supplier to furnish a 1500-gal. L. P. gas tank on wheels for the period needed.

The second class of equipment is the 30-ton capacity mobile precooler. One of each is mounted on four Diamond T trucks and four utility trailers. A truck can pull one trailer when two units are needed on a job. Any one of the eight units can handle one refrigerator car or semi-trailer of equal size. To the precooling fleet, these are the "fast dispatch" units which can be despatched to handle emergencies, or they can stay with the formation and supplement the work of the bigger units.

On these outfits a Chrysler engine drives two sets of blowers, a condenser and a pump, which are part of each 30-ton outfit. All compressor and vehicle engines operate on L. P. gas, and use about 5 gal. an hour when precooling.

In addition, six Diamond T L. P. gas-powered trucks serve as general utility vehicles.

Leafy vegetables require the third class of equipment, the quick-chilling Water Bath Precooler, which reduces temperature about 10 times faster. This has been found most satisfactory for the precooling of asparagus and celery.

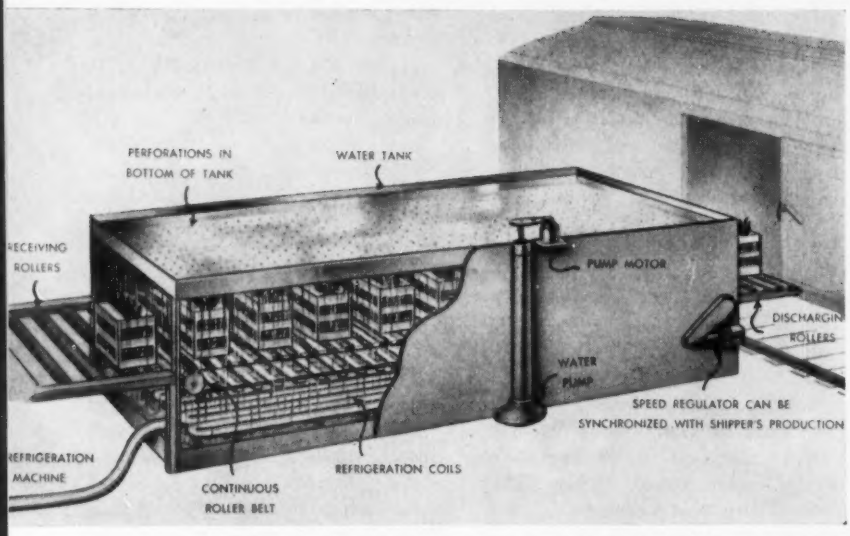
Four Water Bath Precoolers are in use, and each can handle as many as 20 cars a day. While these outfits are portable, two of them are usually found located in the San Jose area and the other two in the Delta area around Stockton.

Refrigeration is provided by four separate 50-ton units. These are the same as used in the Gypsy Precoolers, and all are L. P. gas-powered with a 150-hp Hercules engine.

Used chiefly for terminal work, 200 electric precoolers make up the fourth class of equipment. Looking much like a large domestic refrigerator, each handles one car. These units produce refrigerated air which is similarly blown into the car with high velocity fans, which also exhaust the warm air at the same time.

The equipment of Precooling Service Inc. follows the crops as they are

This plant has a daily capacity of six to nine cars each. They are 50-ton, self-contained ammonia refrigerator plants, portable-mounted on a semi-trailer and connected to forced draft coolers, which, in turn, are connected to railroad cars.



Diagrammatic sketch of a water bath connected to a standard portable refrigeration machine. Built by General American, the bath is used for quick precooling of leafy vegetables. Equipment is built with the capacity to handle from 1 to 20 cars per day—both portable and permanent installations.

Can you develop this idea with low-cost L. P. gas operation?

Here is another idea for precooling which was tried out on McIntosh apples at the Cornell University agricultural station at Ithaca, N. Y., recently, according to "*The Packer*" of January 7, 1956, page 23.

It differs in application from the story of Precooler Service Inc. in that it is primarily a stationary operation, rather than a gypsy service, which moves with crop harvesting through different localities.

R. B. Furry, instructor in agricultural engineering at Cornell, said precooling apples reduces their temperature rapidly, which is very desirable. He also concluded "Vacuum (type of precooling) isn't suitable and hydro-cooling has possibilities."

Ordinarily, apples are taken directly from the orcrard and put into refrigerated storage. The apples may then require several days or weeks to get down to the desired temperature. Because more apples are constantly being added, the cooler fruit is being adversely affected by the warm apples. (This is because regenerative heat is being re-introduced at a time when it is just being taken under control.)

Hydro-cooling, which is another name for the work performed by Mr. Stebbins' Water Bath Precoolers, involves putting the apples in cold, running water at 32° F. The water can be run and re-run over ice or cooling coils to maintain its temperature. This method lowers the field temperature of apples from about 75° down to 32°, before refrigeration.

Through his experiments, Mr. Furry found that the temperature of an apple measuring 2½ in. in diameter can be lowered from 75 to 32° in 46 minutes by this method.

Perhaps this is an idea which can be developed for commercial apple producers. So far as we know, it has not yet been done. While Cornell used ice to chill the water in its hydro-cooling experiments, ammonia refrigerating units with L. P. gas-powered engines would perform the task quicker and at lower cost. Also the labor cost of handling ice, which would probably have to be produced with a refrigerating unit anyway, would be eliminated. An additional advantage would be the continuous supply of ammonia refrigeration below 32°, available to more efficiently control the temperature of the heat exchanging medium—water in this case.

ready for harvest. This area extends from the Imperial Valley in southern California and into adjacent Arizona, to as far north as Ukiah, Calif., which is about 100 miles north of San Francisco.

Field operations begin in April or earlier and continue day and night, when necessary, for about six or more months of each year. A busy time follows the harvest, when precooling units must be rebuilt or serviced. A high degree of mechanical efficiency must be maintained as the equipment must be capable of operating 24 hours a day when necessary, for six or more months of each year. The extreme dependability of L. P. gas engines has been a vital factor in keep the units in continuous service.

Asparagus is the first crop to be handled, followed by strawberries, melons, grapes, tree fruits such as peaches and pears, citrus fruits, and celery. Precooling of celery usually starts in June and sometimes runs as late as December.

The company is firmly sold on L. P. gas operation. This conclusion was reached after exhaustive experimentation and testing. Back in 1937 Mr. Stebbins first became interested in butane and commenced a series of tests which extended over two years. During this time, he converted his two Chrysler cars to butane and carefully compared performance and maintenance costs against gasoline operation.

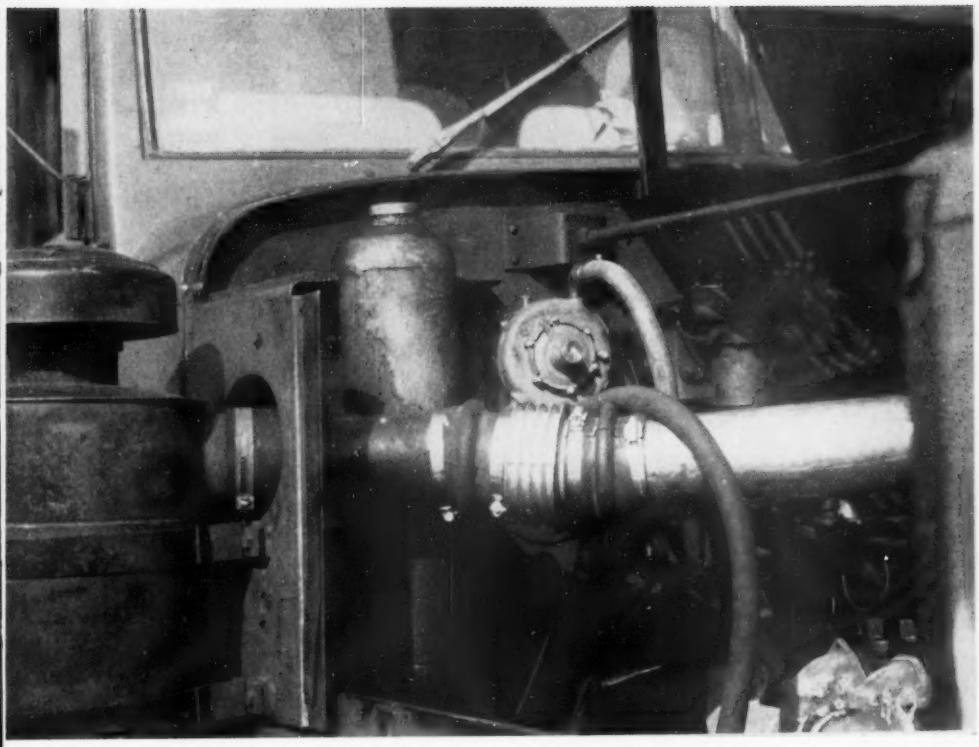
Gasoline truck engines as well as Cummins diesel engines were also tested. Butane proved so superior in every way, showing greater flexibility with overload, freedom from service interruptions and much lower maintenance costs per year, that a gradual conversion-to-butane program was initiated. By 1950 every engine in the fleet except one was converted.

About 6000 railroad cars and 1500 refrigerated semi-trailers a year are now conditioned before being sent to market by Precooling Service Inc.

Fuel for the engines is purchased locally in the districts where the equipment is operating.

Approximately 300,000 gal. of L. P. gas is required in a season—and this is nearly all used in the warmer months.

Precooling of perishable crops with L. P. gas is big business. ■



The Dual Fuel Mixer is inserted in the air intake line, supplies up to 15% of total fuel.

Propane is "chlorophyll and vitamins" for the diesel

By CARL ABELL

THE addition of propane to the intake air of the diesel engine may be the key to the elimination of the diesel smoke and stink.

Diesel smoke is one of the more serious components in the atmospheric pollution that hovers over many of our larger cities, particularly in the West and Southwest where a high percentage of the freight that moves over the highways is pulled by diesel engines. A diesel engine in a good state of maintenance can be operated with very little smoke, but it becomes offensive from two conditions—when the wear in the injection system reaches a certain degree, and when it is adjusted to give an over-rich mixture. It will not deliver its maximum power without the surplus fuel that produces that black and malodorous exhaust.

Diesel buses also contribute materially to the unpleasant street odors. Their fumes are discharged at sidewalk level, and the public relations result of operating diesel buses in downtown areas is very bad. Recognizing this, the Chicago Transit Authority has taken all diesel buses off the routes feeding into the downtown area, and substituted propane buses, which have odorless exhausts, on the routes where the largest number of voters congregate. But this does not help the riders who do use the diesel buses there and elsewhere. They must breathe the offensive fumes which flood in through the body openings.

Substitution of propane for a low percentage of the diesel fuel has accomplished a considerable reduction of smoke and stink in experimental work that has progressed beyond the laboratory stages on the Pacific Coast. By means of an adaptor inserted in the air intake tube of the diesel engine, amounts of propane up to 15% of the total fuel consumption are fed in with the intake air. The metering of the injection pump is correspondingly reduced, setting it lean enough that the exhaust is practically smoke-free. This is sufficient fuel to provide good cruising operation, but develops less than the maximum power of the engine. Propane is supplied to make up the difference when pulling power is needed.

In the preliminary test installations the propane is turned on and off by means of a manual switch which controls a solenoid valve on the propane line. (A spring loaded switch installed so as to make con-

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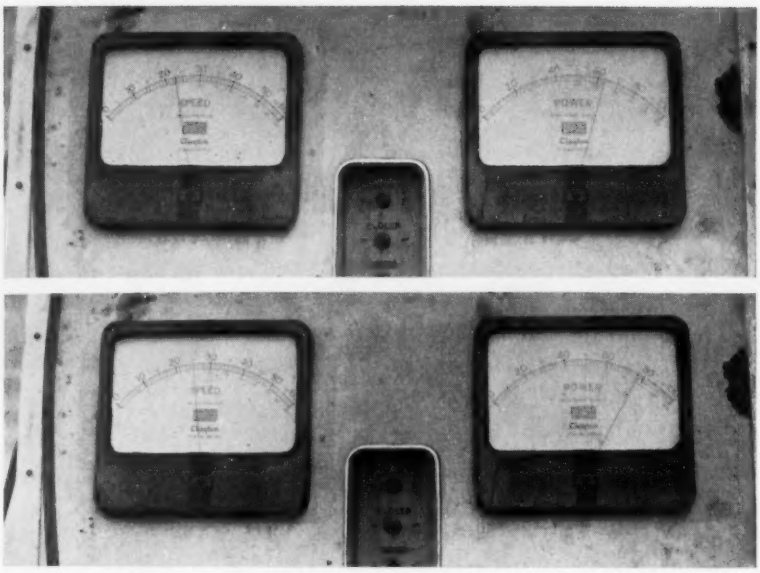


With fixed load, these dynamometer instruments show speed and power (1) with diesel fuel only, and (2) with diesel fuel and propane.

tact when the throttle is depressed to the full-power position would automatically turn the propane on and off as needed.) When full power is needed, as when climbing grades or accelerating through traffic, the propane is turned on, and the engine produces the full power available from the combined volume of both fuels. A slight increase in smoke is noted, but it is still a great deal less than would be produced with the injection pump set to deliver the same power on straight diesel fuel. By increasing the amount of propane metered into the engine, plus a slightly richer adjustment of the diesel pump, more power can be gotten than can be produced with diesel fuel alone, but the smoke increases as the power curve climbs until it becomes almost as bad at full power on the combined fuel as at maximum power with straight diesel.

The propane-air mixture as it is drawn in and compressed is too lean

The diesel engine produces a clean exhaust when not over-fueled. Small propane tank mounts behind cab.

to burn. It is set afire by the ignition of the diesel fuel, and appears to have a kindling effect, causing more complete combustion of the heavy fuel, which accounts for the reduced tendency to smoke. As would be expected under those conditions, the fuel efficiency as well as the power is increased, and the miles per gallon shows an important gain.

The first test job put on the road was adjusted on the dynamometer to give just 5 hp more at the drive wheels than it had produced as previously set on straight diesel. The last 2000 miles it had operated on diesel fuel only showed fuel consumption of 5.04 miles per gallon, and smoke was produced in annoying amounts. The first 2000 miles of combined operation (LPG and Diesel) showed total consumption of both fuels adding up to 6.02 miles per gallon, an improvement of almost 20%, and almost complete freedom from smoking. The engine used in this test was a Cummins 200-hp Model NH diesel, mounted in an International semi-trailer in regular freight service between Los Angeles and San Diego. Additional test units have shown similar satisfactory results.

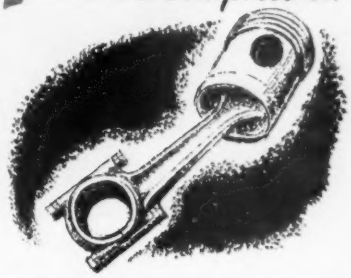
The propane installation was made by Ellis Manifold Co., Los Angeles, using a 15-gal. propane tank, Ensign Model W regulator and a special cast aluminum adaptor manufactured by Ellis for metering the propane into the intake line. Horsepower measurements were made on a Clayton chassis dynamometer at the Ellis Manifold plant.

Mr. Ellis points out that in areas like Los Angeles where atmospheric pollution is a problem, the combined fuel metering units may be set to produce as much as 20 to 30 hp more from this model engine without exceeding the permissible maximum smoke allowed under the anti-pollution ordinance, and that smoke can be almost completely eliminated by closing down on the two fuel adjustments to bring the engine down to its former maximum power on diesel fuel alone.

Stated concisely, the operator can have the same power as before, with greater economy and almost no smoke. If he wants more power, he can get it at a sacrifice of some of this economy and with the production of more smoke. ■

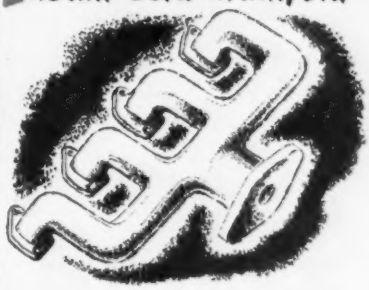
Insure your customer's satisfaction ... Convert "ALL THE WAY"

Increase compression



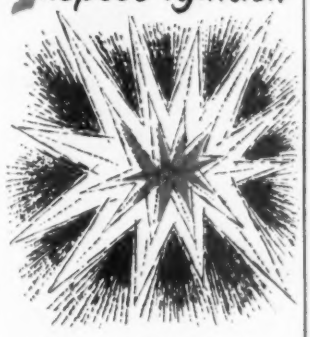
Higher octane, more efficient LP gas requires a more efficient engine. Unless compression is increased, many of the advantages of LPG may be lost.

Install cold manifold



Since LP Gas is completely vaporized, a "hot" manifold thins mixture ... meaning a loss of power and economy.

Inspect ignition



LP Gas requires a 20% higher temperature for ignition. By checking the ignition system you can eliminate a majority of service calls. Also, an excessively rich mixture has the same effect as a weak spark.

Insist on Garretson

Check these features:

- SENSITIVE — From idling to maximum RPM, Garretson carburetion systems adjust to give optimum operating efficiency.
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If you, as a distributor of LP carburetion, follow the four steps explained above you'll insure satisfaction for your customers and profits for yourself. Sounds simple doesn't it? Well it *is*, because Garretson fuel controllers are simple to INSTALL ... OPERATE ... MAINTAIN. So check Garretson's features and then check with your distributor right away!

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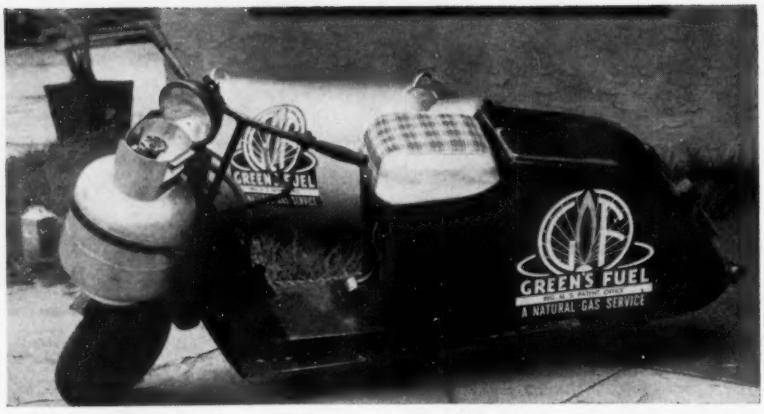

The LPG-powered motor scooter used by Bi-County Fuel Co. at Wauchula attracts much attention around town.

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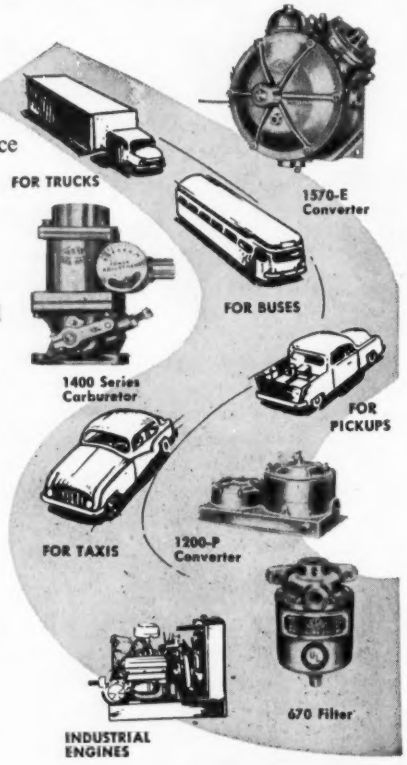

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His "carburetion fingers" pay off

J. Arthur Thompson

IF a gardener has a "green thumb," then Jimmy (LPG) Ray has "Carburetion Fingers"! When he was born down in Georgia, his folks named him James O. Ray, but of late years he has become more generally known as Jimmy LPG Ray.

And with good reason. Jimmy has always had a knack for mechanics and he has acquired an almost intuitive know-how in matters of carburetion. Years of experience in various parts of the world have made him an expert.

In 1940 he went to China as a technician for the Chinese Army. Four years of war in the forces of Chiang Kai-Shek in China and Burma gave him a rich experience in his field, but it also gave him a physical battering which few men could have survived. In fact only a small number of the Americans who went over with him did return. He has a silver plate in his skull, a bad eye and sundry other physical disadvantages as a result, but Jimmy just isn't the sort of a guy who would let such minor matters slow him up in the least.

Back in the states, he finished out the war as a civilian technical ad-

BPN exclusive

visor for the U. S. Air Force and then several years ago he started his LPG carburetion business at Wauchula in central Florida.

Very recently he has moved to Bowling Green, Fla., just a few miles north of his previous location.

Bowling Green and Wauchula are right in the heart of a rich agricultural and citrus region. Fruits and vegetables are shipped from this area to northern markets by huge transports. A great deal of industry has moved into Florida and construction of all kinds has boomed. Such an opportunity just couldn't be overlooked by a man like Jimmy Ray.

Jimmy has installed LPG carburetion in such diverse items as a locomotive and a lawnmower.

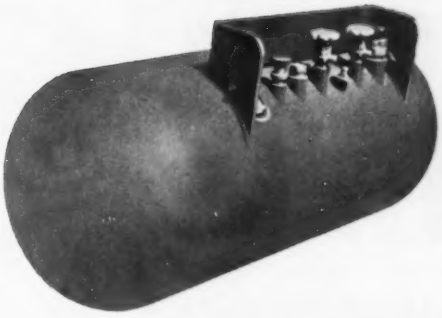
Locomotive's use

The locomotive is operated by Hartstone Concrete Products, Inc., of Tampa. It has a 6-cylinder Le Roi engine, with 6¾-in. bore and 7-in. stroke, with 1503-cu in. displacement. The locomotive is used to haul sand, gravel, aggregate, and cement blocks around the company's plant. Ray converted it about a year and a half ago. The only engine change was a cold manifold, which was made up in Jimmy's shop to take two Century 3-C 1 ¾-in. carburetors. Vaporized fuel is supplied by a K-4 regulator.

On gasoline, the fuel cost for this locomotive was about $22.90 per five-day week. Oil changes were made once a month at a cost of $9.60. Spark plugs had to be changed every three months, and the engine required a valve job about once a year. On L. P. gas their fuel costs about $8 per week, with oil changes twice a year, and spark plug replacement also twice a year.

Ready-mix trucks

Hartstone also operates more than 30 converted ready-mix trucks, Ford F8 and T8 models, with 7-cu yd mixers. On gasoline these trucks required oil changes at 1000 to 1500 miles, and spark plugs generally required replacement at less than 7500 miles. The first F8 to be changed to L. P. gas went 37,000 miles before either the oil or the plugs were changed. The company reports a saving of approximately 25% in operat-



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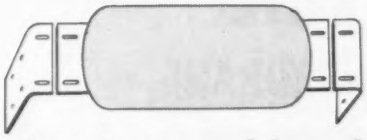

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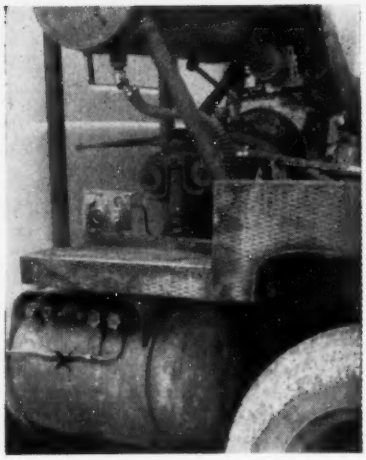
ing cost of this fleet, the locomotive, and sundry fork-lift and other small vehicles.

25% savings

At Clearwater, Fla., Ray has equipped 25 transit mix trucks for the Pinellas Building & Lumber Co. with L. P. gas carburetion. Both truck motors and mixer motors are run by L. P. gas. The Pinellas company estimates that in two years its saving has paid for all of the quipment, including the LPG bulk plant. Savings are estimated at 25% compared with previous carburetion.

General Redimix Concrete at Clearwater is also in the process of converting all of its transit mix trucks to L. P. gas. Five have already been converted and about 20 more are still to be changed over.



Single tank operates both engines on Ready-Mix truck operated by Pinellas Building & Lumber Co., Clearwater, Fla.

Motor scooter

Another interesting conversion was on a Cushman motor scooter for the Bi-County Fuel Co. at Wauchula. The small LPG carburetors that were available would not idle or accelerate properly on this particular engine, so it was necessary to revise the gasoline carburetor to take in LPG

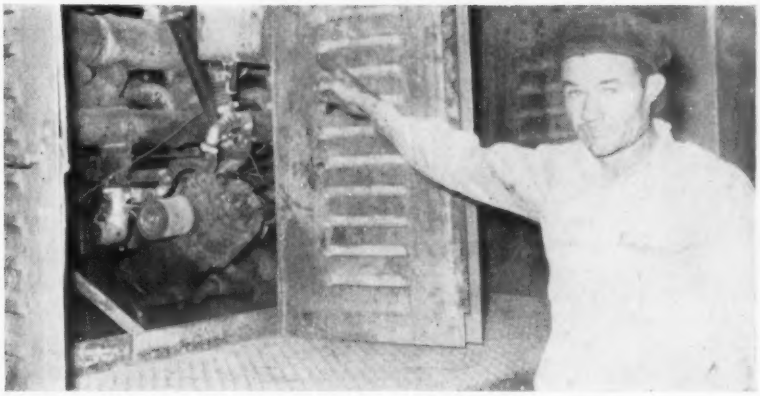
No smoke but more horsepower and efficiency with an ELLIS DUAL FUEL SYSTEM

This is the new Ellis Dual Fuel Mixer

The Ellis Dual Fuel System eliminates obnoxious Diesel smoke by the addition of propane fuel to the intake air of the engine. This produces a kindling effect that causes more complete combustion of the heavy fuel and reduces the tendency to smoke. Fuel efficiency as well as power is increased and actual tests show a mileage boost of as much as 20 percent. An additional benefit is the production of 20 or 30 more horsepower.
Join the list of dealers today who are increasing their fuel load by stocking and selling the Ellis Dual Fuel System.

In most cities, dial information for the number of your Ellis Manifold Dual Fuel System distributor.

ELLIS MANIFOLD CORP.
2212 E. Washington Blvd., Los Angeles 21, Calif.



Carburetor installation on 1503-cu in Le Roi engine in Hartstone locomotive.

through the main venturi and through the idling system. This operated quite well, and resulted in front-page publicity in the local newspaper. This aroused considerable interest and brought leads for the conversion of larger engines.

Everyday jobs

Conversions on tractors, orchard sprayers, irrigation pump engines, and similar equipment are just commonplace, everyday jobs .

Hundreds of refrigerated or "cooler" transports run out of this area with fruits and vegetables. They offered another challenge.

Most of the refrigeration motors on these transports are small Clinton or Briggs & Stratton gasoline engines. The conditions under which most of them operate are far from ideal. Lubrication is sometimes sketchy and irregular. Gasoline used may be very inferior. The transport may move from one temperature extreme to another in a very short time. Valves stick. Frequently two round trips from Florida to Chicago will necessitate an overhaul.

LPG carburetor

Jimmy Ray devised an LPG carburetor to fit these small motors and has installed them on quite a number of transports. With a couple of LPG cylinders hooked to his cooler motor, the transport driver can take off from central Florida with the assurance that his cooler will work all the way to Chicago with no refueling, with no worries about sticking valves or other failure of his cooling system motor. But the big savings come from the elimination of frequent overhauls. Many of these converted units have run for three seasons before any overhaul is needed.

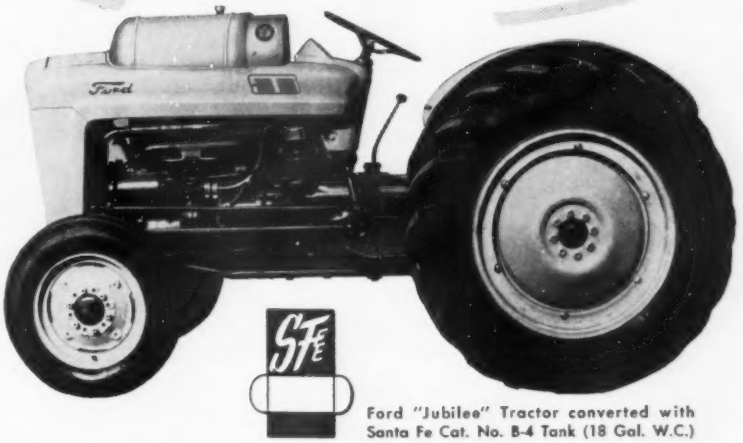
As a service to his agricultural and industrial customers, Jimmy represents the Southern Gas and Fuel Co. of Tulsa, Okla.

Southern furnishes 1000-gal. tanks, either singles or in battery as may be called for, to the customer and delivers whatever fuel is required at competitive prices. Some wholesal-

The Toughest Conversions are made

BETTER, FASTER, EASIER

with Santa Fe "Custom-Built" Tanks



Ford "Jubilee" Tractor converted with Santa Fe Cat. No. B-4 Tank (18 Gal. W.C.)

. . . Take the Ford "Jubilee" model, for instance. Few tractors present such a challenge for a streamlined, factory built appearance after conversion. Yet the Santa Fe "Custom-Built" B-4 tank meets this difficult challenge with ease, bringing the driver . . .

Quick, convenient filling
Full use of all implements
Excellent visibility
Protection of all valves
Tailored appearance

Just as important, this tank is easy to install, using Santa Fe's exclusive hood cutout template. Shipped complete with mounting brackets, there are no holes to drill . . . no field welding. Just bolt it on after cutting and trimming the hood.

Whatever your conversion tank requirements — Ford, Ferguson and other makes — there's a Santa Fe "Custom-Built" tank available. Write for complete specifications and prices.

Santa Fe **ENGINEERING & EQUIPMENT CO.**

P. O. Box 587 • Phone Diamond 3-8169 • Tulsa 1, Okla.

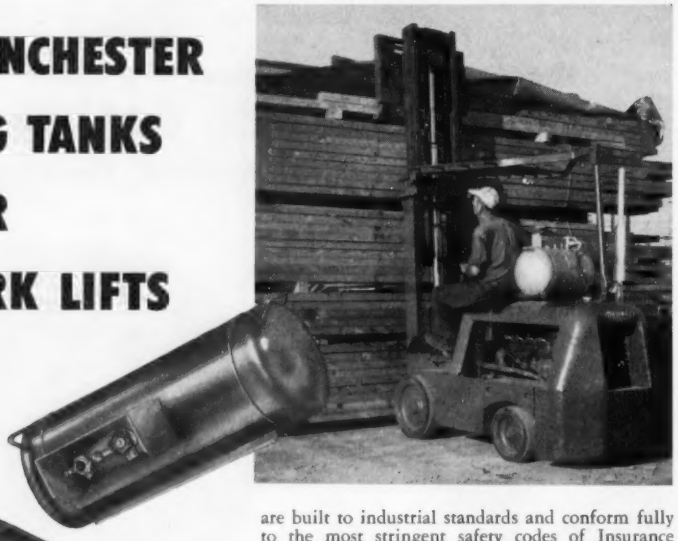
His "carburetion fingers" pay off

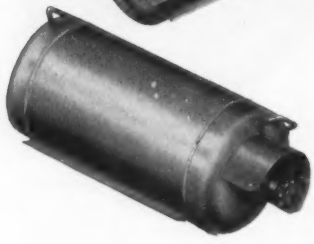
ers in the area prefer to deliver only in 6000-gal. transport loads.

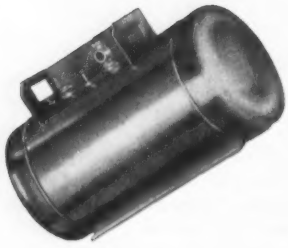
Ray is state distributor for Century carburetors and carries a substantial stock in his shop. And if there is no stock carburetor to do the job, he gets busy and makes one! He assembles his own conversion kits. ■

A large stock of carburetors is carried in stock at Jimmy (LPG) Ray's combination service station and carbuertion shop.

MANCHESTER LPG TANKS FOR FORK LIFTS







are built to industrial standards and conform fully to the most stringent safety codes of Insurance Underwriters. All Manchester tanks have as standand fittings a POL, NPT or SAE service valve, a ¾" relief valve, a liquid level outage gauge, a removable valve guard, two carrying handles and two angle iron brackets. The service valve is equipped with an excess flow check which automatically stops the flow of gas if the fuel line breaks or if the valve breaks off. As optional equipment, 1¼" Acme fill valve with double back pressure checks, and visible float gauge may be installed. The tanks are built to ASME-U-69 for 250 lbs. working pressure, ASME 1952 for 312, or ICC for 375 lbs. working pressure. They are available for either liquid or vapor withdrawal.

Because Manchester specializes in LPG motor fuel tanks, it can give you a greater variety of standard tanks, tanks which are better engineered for special types of lift trucks. It is not confined by its production line to 3 or 4 types of tanks. There is no need to compromise on the lengths, widths or capacities you may want.

Manchester tanks are available for vertical or horizontal use with length, diameter and location of fittings optional in sizes from 8", 10" and 12". Stock sizes include 12¼ x 15 top and end fitted, 12¼ x 17 top and end fitted, and 12¼ x 24 top and end fitted. Or they can be manufactured to meet your specific requirements.

MANCHESTER
Welding & Fabricating Co.
NEwmark 1-9357 or NEvada 6-2839
2880 NORTON AVENUE, LYNWOOD, CALIFORNIA

POWER SHORTS

Chicago Transit Authority orders 250 propane buses

Chicago Transit Authority has been authorized to purchase 250 additional Flexible-Twin Coach buses, and to lease 100 Mack buses. All of these vehicles are of 50-passenger capacity, and will be factory-equipped to operate on propane. As has been customary in the past several years, the invitation for bids specified "eithed diesel or propane," but when the selection of equipment was made the propane vehicles won the decision.

This acquisition will bring the total number of propane vehicles operated by the transit authority up to 1300. All new vehicles placed in service by CTA in the past six years have been powered with LPG.

Reo relocates factory branches

A broad-scale face lifting program in Reo's network of factory branches throughout the United States has been initiated, J. L. Adams, vice president for sales, has announced.

Six of the 30 branches have been relocated in larger and more strategic locations, one new structure is presently nearly completion at Toronto, Canada, facilities at others have been expanded to meet the needs of increasing Reo business and Reo officials are studying plans for new structures in other cities.

Greatly enlarged facilities have been provided by moving branches at Buffalo, Pittsburgh, Oklahoma City, Wichita, Denver and San Francisco.

Much of the increased volume that has made this expansion program necessary has arisen from the company's truck leasing program and from the enthusiastic acceptance of the Gold Comet engines for repowering other trucks, and the shop work developed in the installation of propane fuel systems to go with these repowering jobs.

"What we have done, generally, in the cities where we have relocated branches is to increase our facilities on an average of 70%," Mr. Adams said. "In some we have achieved as much as a 100% increase in size, indoor and outdoor, with equal expansion in service facilities where we have installed the most modern shop equipment, steam-cleaning facilities, paint booths and hand tools. In all we have increased the service personnel."

Subject: Valve Life

It is important to check valve lash frequently on L. P. gas-operated engines, particularly on converted gasoline engines. Many engines have a tendency for the valve head to work into the seat and this can be critical on overworked engines. If clearances are not maintained, there will be a loss of power and a good chance of burning valves. The use of dissimilar hard valve facing and seat insert materials will help to overcome this problem. Many engines come with this combination, particularly those manufactured specifically for the use of L. P. gas. One manufacturer has very good results with Stellite "F" valve facing and Stellite No. 6 seat insert material. If you have this problem, we recommend that you try this the first time it is necessary to regrind valves.

—From Century "News Letter"

Distortion of blocks in engines

Iowa

We are having trouble with distortion of blocks in engines which we have high compressioned for operation on propane. We use a torque wrench and pull to the recommended tension. In certain L-head engines this distortion is so bad that valve seats are not in line and two blocks have cracked through to the water jacket. We have overcome this in one make of engine by installing studs and nuts in place of the original capscrews. We are not having these troubles except on engines on which we install planed heads. Why does this affect the block?

B.T.

From your description we believe your torque wrench is measuring the resistance of the rust in the previously unused

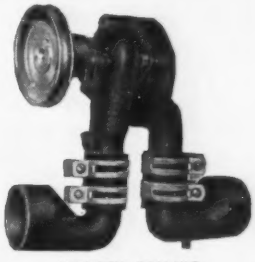
Your DIX Warranty

Dix Carburetor Company will rebuild any DIX LP-Gas Regulator – regardless of age – for $5.00 (plus parts). This is the buyer's guarantee of satisfactory service.

NOTE: This offer applies only to units returned direct to factory in Los Angeles.

DIX CARBURETOR COMPANY
6605 S. WILSON AVE., LOS ANGELES 1, CALIF.

4 CYLINDER MANIFOLDS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High Compression
Pistons • Manifolds • Pumps

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Water Pumps for John Deere Models "G," "A" and "B"

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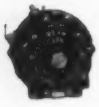
For Price Lists and Dealer Discounts

LOAD BUILDER for L-P GAS MEN

BEAM L-P GAS CARBURETION

AUTHORIZED SALES

BEAM 100
120 H.P. Dry-Gas Regulator. Similar to 120 except for vapor use.
Built-in vacuum lock-off.
3¾ lbs. in weight
6" in diameter.



BEAM 120
120 H.P. vaporizer-regulator. Used on fork lifts, tractors, taxis, small engines.
Built-in vacuum lock-off.
3¾ lbs. in weight
6" in diameter.

BEAM 400
275 H.P. vaporizer-regulator. Automobile, truck, stationary engines. Use with solenoid valve for positive lock-off.
5¼ lbs. in weight
6½" in diameter.

BEAM 800
500 H.P. vaporizer-regulator. Large trucks, off-the-road equipment, large stationary engines.
Built-in vacuum lock-off.
15 lbs. in weight
9" in diameter.

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Available in over 24 different models to fit all makes and types of engines.

SOLENOID VALVES
6 and 12 volt d.c. ⅛" and ¼" pipe size. Nine model LPG valves. One model gasoline valve . . . Special valves on request.

STRAIGHT CARBURETORS
Straight LPG Carburetors in many styles and sizes to fit most every requirement.

SPUD-IN ADAPTERS
Simplified spud designs for more economical conversions.

A BEAM DEALERSHIP IS A HIGHLY PROFITABLE OPERATION

Write or phone for information on how you may qualify.

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Beam Products are compact and easy to install. Only two simple independent adjustments. Quick sure starting. Can be converted so that engine will operate on gasoline again with the flick of a switch.

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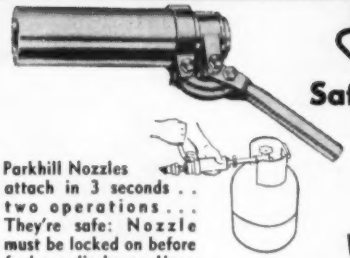
REGULATORS · CARBURETORS · SOLENOID VALVES



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Safety Hose Nozzles

- *QUICKER FILLING*
- *SAFER OPERATION*
- *LOW MAINTENANCE*

Write for Information

Parkhill Nozzles attach in 3 seconds . . two operations . . . They're safe: Nozzle must be locked on before fuel can discharge. Upon release gas escapes away from hands . . .

No Cold Burns!

PARKHILL COMPANY

2264 Huntington Drive, San Marino, Calif.

threads, instead of the tension against the head. There does not appear to be any other reason why the planing of a few thousandths of an inch off a head should produce distortion which did not appear with the standard head.

The "Butane-Propane Power Manual" (Jenkins Publications Inc., 198 S. Alvarado St., Los Angeles 57) has this to say on the above subject: "A torque wrench should be used for the final tightening of the head bolts. Bear in mind that this will be of no value whatever unless the threads are clean and lubricated for the entire depth that they will be in contact. When installing a head that has been cut, and in nearly all cases where a factory-made high compression head is used, there will be three or four threads used which have not previously been in contact. Studs which were perfectly all right with the previous head may not be threaded far enough down to hold the high compression head. Some engine heads are held down by capscrews, and in all such engines that have been in use the threads down in the block will be rusted.

"If it is not convenient to clean up these threads with the appropriate dies or taps, flat washers should be used as spacers next to the head, so the threads will not be matched beyond their previous limits. The threads should also be well lubricated, or the tightening will not be uniform even though the torque wrench may reach the specified reading."—Ed.

Fuel injection for LPG?

Utah

Would you please give me a short discussion on whether it will be possible to use propane in the new fuel injection systems that are being developed? I understand that it is the opinion of automotive experts that this system will be in common use within a few years.

A.C.J.

We have also read the publicity to the effect that fuel injection systems will make their appearance on American automobiles this coming season. We do not, however, have any accurate details as to the method that will be employed in this fuel injection. If the systems are like the one which are used in the Mercedes Benz automobiles produced in Europe, it will not be applicable to the use of propane without considerable modification of the system.

These systems use a solid injection system quite similar to a diesel injector. It might be possible to adapt the other type of injection, which is not injection at all but delivery of fuel through a tube at the inlet valve during the suction stroke. It would probably require complete replacement of the liquid injection system with one designed with the proper capacity to deliver gas.

One American carburetor manufacturer has recently introduced a carburetion system for L. P. gas which it calls fuel injection. They actually introduce their fuel into the engine under pressure but this

introduction is made at the inlet of the manifold as with an ordinary carburetor. The injection feature in their system is merely the 2½-lb pressure at which the fuel enters the air stream.

If the engine manifold is designed so that a good mixture is obtained by the time the fuel reaches the cylinders, this might be just as good with propane as a direct injection system into the cylinder or to the inlet valves.

We cannot get too excited about the possibility of automotive fuel injection upsetting the propane carburetion business. It will still be a good many years before even a minority of automobiles come out of the factory equipped with fuel injection, and in the meantime, propane will still do a better job with simpler and less expensive equipment.—Ed.

The ICC statement about LPG being a safer fuel

We have had numerous requests for reference to the source of the oft-repeated statement that the Interstate Commerce Commission rates butane and propane as safer fuels for motor operation than either gasoline or diesel fuel. The source was a report entitled "Motor Carrier Fire Accidents, 1951," by the ICC Bureau of Motor Carriers Section of Safety, published by the commission under date of Dec. 14, 1953. The complete paragraph appears on page 38, and reads as follows:

"(F) There are many possibilities for the avoidance of fires and the reduction of fires through redesign of vehicles. Although no data are available concerning the proportion of mileage operated by gasoline, diesel fuel, and liquefied petroleum gas-powered vehicles, it would appear from examination of accident records that diesel-powered equipment is less likely to catch fire due to tank rupture than is gasoline-powered equipment and that liquefied petroleum gas equipment is practically never involved in a fire accident because of failure or rupture of the fuel system. This increased safety may be attributed to the lower flash point of the diesel fuels and the necessarily sturdy construction of butane and propane tanks. Carriers of dangerous and valuable cargoes should, therefore, give careful consideration to the type of fuel that powers their units."

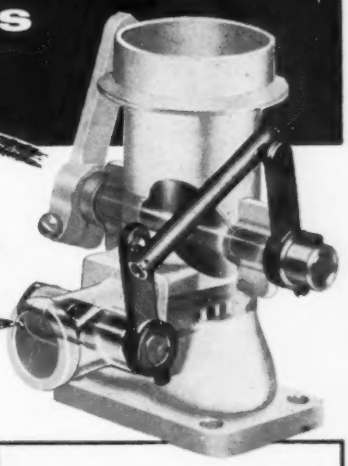
Trucks perform best!

On High Octane LP-Gas with

CENTURY carburetors

3C Controlled Combustion Carburetion

with metering valve controlled combustion



...and here's why

Perfect fuel mixtures are guaranteed by Century's metering valve regardless of changing conditions, temperatures or altitudes. You get economy and performance because the metering valve *controls and proportions the gas* exactly as preset at the factory to the engine's performance curve. No elaborate adjustments, only a tune up is required—just set it! Seal it! And forget it!

Get the facts, write for Bulletin No. G-75

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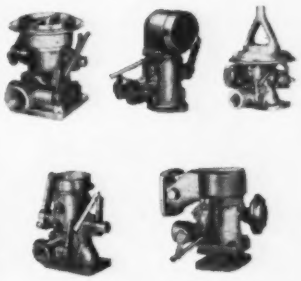
GAS EQUIPMENT COMPANY
Lynwood, California

Faster Starting! Perfect Idling! Economy!

A CENTURY FOR EVERY TRUCK



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REGO® LP GAS EQUIPMENT

For lift trucks and all other types of combustion engine installations, be sure of getting the finest LP Gas control equipment. Always specify REGO . . . the best in the industry as well as the most complete line.

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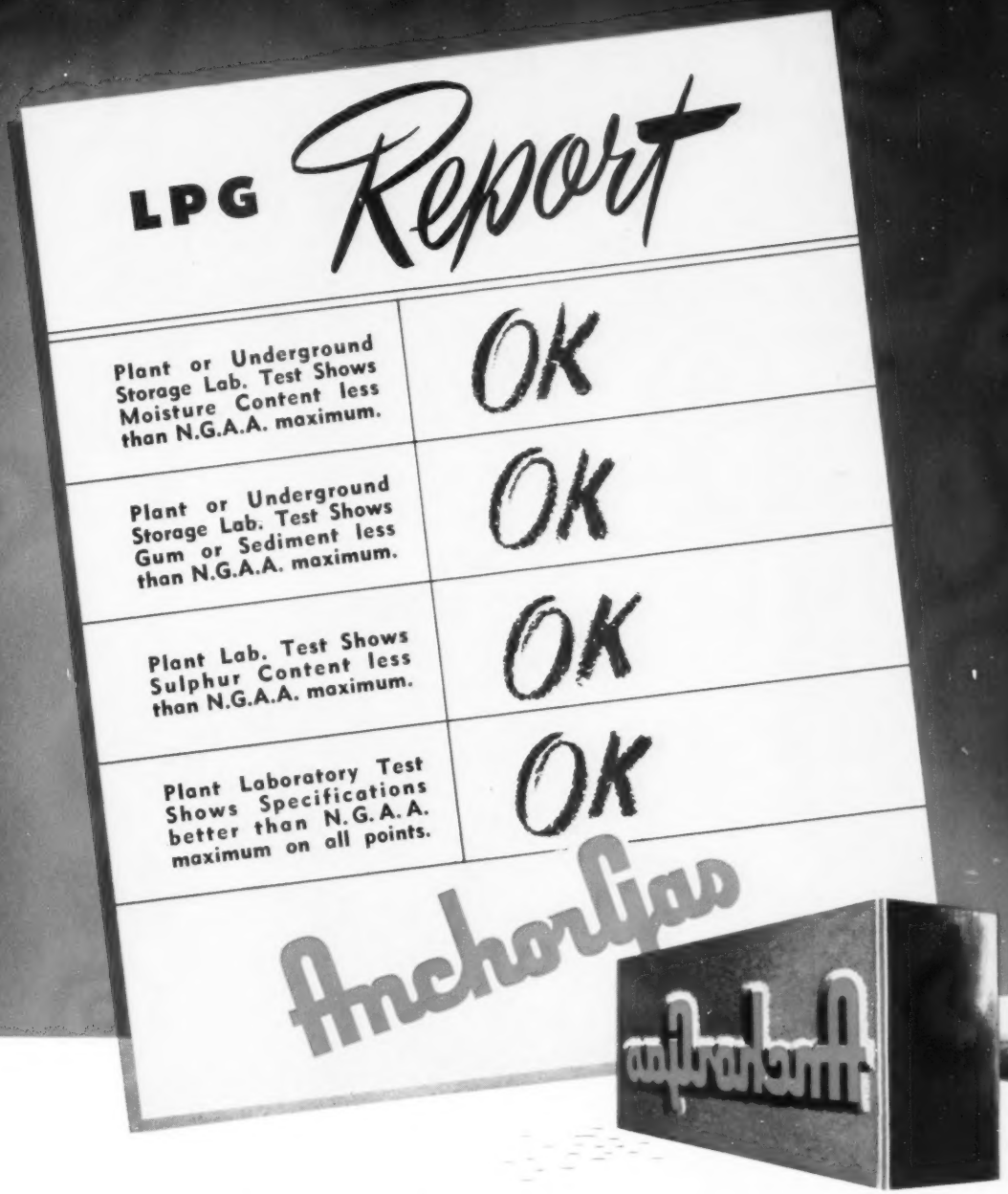
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